GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES HONEY & HOME INTERESTS.

E. A. Whiting

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OUT-APIARIES—NO. VIII.

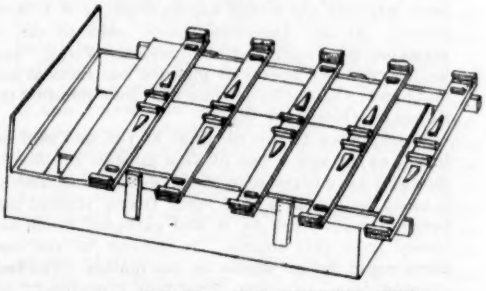
RIGGING A WAGON FOR HAULING BEES.

THE first moving of bees of which I have any recollection was done in a very primitive manner. The bees were in a box hive. The hive was set right side up (the bottom, of course, open), on a sheet. The four corners of the sheet were tied together over the top of the hive; a pole was thrust through and carried on the shoulders of two men a distance of about two miles, at night. When I commenced hauling my own bees I had a common one-horse wagon, the box of which was about 8 ft. long and 3 ft. wide, inside measure. My hives were Langstroth, with cleats on the sides, making them so wide that two would not sit in the wagon side by side, so I could get only four in the wagon, using one for a seat. I increased the load to seven by putting three on top of the hindmost three. If simply placed on top without fastening, the upper hive would slip off. I made a pair of sticks to place between the upper and lower hive so there could be no sliding. The sticks were as long as the tops of the hives, about an inch wide, and one-fourth inch thick. Near each end, several common big-headed tacks were driven through from each side.

STICK WITH TACKS TO HOLD ONE HIVE ON ANOTHER.

The bottom hive was placed on the wagon; one of these sticks was pressed on top on each side, then the other hive was placed on it, and there was about as much security from slipping as if the hives were nailed together.

But one horse could easily haul more than seven, over good roads. I then made a sort of rack to put on the wagon-box. It is made of fence-boards. Two side-boards rest on the side-boards of the wagon-box, and at or near each end two pieces are nailed in, forming an open box without top or bottom.



RACK ON WAGON-BOX, FOR HAULING BEES.

Then five cross-pieces are nailed on top, and blocks nailed on these to hold the hives in place. Two pieces are nailed on each side (as seen in the cut), which slip down on the wagon-box and keep the rack from slipping off. A loose board in front answers for a seat. The hind end of the rack is propped up, at time of loading, till 3 hives are slid under from behind, then the rack is let down, and the 8 hives loaded on, making 11 hives for the full load. I have a similar rack, only larger, to fit Jack Wilson's milk-wagon, on which, drawn by two horses, I can haul 17 hives. Jack is one of the brothers-in-law worth having, for generally about the time I want to haul bees he seems to have things happen so as to say that he has an idle team that I can have just as well as not. Thus I can take 28 colonies each trip. These are both spring wagons, and, al-

though not absolutely necessary, I like springs, for then you don't need to drive so carefully. A common hay-rack answers very well to haul bees on. Some use a hay-rack with a considerable depth of hay or straw on it, say a quarter of a ton. This acts much the same as springs. It adds to the weight, however, and has the disadvantage that the hives don't sit down flat and regular, but are likely to be in all sorts of shapes. I have used with entire satisfaction a common lumber or farm wagon, with a hay-rack on it, without hay and without springs. Possibly on very rough roads this might not answer so well; but with careful driving I think I would risk it anywhere. I put on a few extra boards and blocks to fit the rack for holding hives. I have seen hives piled on wagons and tied on with ropes, and with some kinds of hives this will answer very well. Indeed, the kind of hives may have much to do with the arrangement for hauling.

Marengo, Ill. C. C. MILLER.

When we moved our bees to the basswood orchard the boys borrowed our wagon, made specially for carrying fruit and vegetables; and it answered the purpose so nicely that I think we shall have to give you an engraving of it, perhaps in the next issue.

APIARIAN MOSAIC.

PROF. COOK SETS US RIGHT IN SEVERAL MATTERS.

DEAR MR. EDITOR:—I dub this article a "mosaic," as I shall speak of several matters and say but little of each.

I was very much interested in the article from A. E. Manum, p. 340. The clear description, simple, clear style, and familiarity with the subject in hand, are each and all most admirable. How easy it is to tell, simply by reading an article, whether the writer knows what he is talking about! As Mr. Langstroth once said to me, in speaking of Virgil and Columella, "Virgil," said he, "writes as a poet who gleaned his facts at second hand; Columella as one who had handled the things of which he wrote."

In reference to the cardinal flower, as I said before, I never saw a bee on this species of lobelia, though I have often seen them on the blue species. It came to me as a fact from friend Hilton, that bees did really work on it and gathered much fine honey from this source. It seemed to me that there could be no doubt in the matter. The fact granted, then, to quote President Cleveland, "we were confronted with a condition, not a theory." True, as friend Gould says, the corolla-tube of this beautiful flower is long; yet the very fact of the brilliancy of the flower makes it clear that it secretes much nectar. Is it not probable, then, that the nectar may, in times very favorable to secretion, rise up so as to be in easy reach of the honey-bee? I take it that this is just the explanation. Usually there is not enough nectar so that the bees can reach it; occasionally, as in the case mentioned, it rises up so that it gives a bountiful harvest to the bees.

I also believe that fertilization by some bird or insect is quite necessary. True, the wind might bear the pollen to the waiting stigma, but the chance of failure would be too great by far. Aided by insects there is scarcely a chance for failure.

Mr. G. asks about bees eating into flowers, and really friend Root brings you and me squarely face to face as antagonists, and then asks the old question as to procedure when doctors disagree. I am glad that, in this case, my opponent is so warm a friend. Now, I do not speak *ex cathedra*. I do not say that honey-bees never cut into flower-tubes; but I feel very positive that this is the case. I presume friend Root simply quoted in this case. I have often seen this statement in print. Larger wild bees certainly cut into flowers, and honey-bees certainly avail themselves of such openings. I know this, for I have seen it repeatedly. I have watched very carefully to see honey-bees do the same, and always without success; so both from observation and the habits of bees—they go to open vessels, not closed ones, for their nectar—I feel persuaded that in this case brother Root is wrong. How is it, dear brother? did you write from personal knowledge or from hearsay?

In reply to E. J. Shay, p. 357, I would state that all larval wasps do cap their cells; so do bees. The larval bee first caps the cell, and later the imago, or adult bees, add a second or wax cap. In many families of wasps there is but the one cover to the larva—its cocoon. In the paper-makers, the larva spins its cocoon just as the larval bee does; only in this case the cocoon is thick, and serves exclusively for capping the cell. In the large paper nests, the capped cells will be seen, and, as all know who have observed them, they are very white, and so contrast strongly with the gray of the paper cells. The fine fibrous silk of the larva is white, while the coarse pulpy paper is gray. The mud-wasps cap their cells with mud before the eggs hatch. Yet even here the larvæ spin a cocoon of silk which surrounds them all through the pupa state.

Our bees have been roaring on the fruit-bloom for three or four days. They commence work before it is fully light, before four o'clock. The flowers are being well fertilized, and we may expect a good crop. A. J. COOK.

Agricultural College, Mich.

Thank you, friend Cook, for the compliment you pay me in calling me a "warm friend," for I hope and verily believe that we shall be warm friends, no matter what may transpire or come up, while God sees fit to let us both live. Your quotation from father Langstroth sounds exactly like him; and I have a great mind to feel hurt, because, right in the next sentence or two, you ask if I did not write from "hearsay." It revived the matter in another column in regard to what the *Encyclopedia Brittanica* has said from *hearsay*. Now, old friend, I do not believe it is one of my failings to make statements in print from hearsay. I love nature too well to take the statement of somebody else, when the bees and the flowers are accessible to me almost every day of my life. When I discovered that the article on the cardinal flower had gone into print, and that I had made no reply whatever, I felt a little sad about it; but I am very glad you have straightened it all out. Like you I have seen the bees sucking nectar through holes in the tube, or, rather, little horn, of different kinds of flowers, and I took it for granted that the Italians themselves made the holes. I do not think that anybody ever told me so. As you state it, however, I think that my fault was in draw-

ing conclusions hastily. I never *saw* a bee bite one of the holes; but I have seen them bite and gnaw wood and enameled sheets, and other things much more substantial. Unless something further comes to light in regard to this matter, the A B C will be changed in the next edition. Your explanation in regard to the capping made by larvæ agrees exactly with my own observation. I am glad, friend Cook, that *you* enjoy, as I do, seeing the bees commence work on the fruit-trees *before* four o'clock in the morning.

A. E. MANUM EXPLAINS.

TARRED PAPER TO KEEP AWAY ANTS; LARGE BASSWOOD YIELDS, ETC.

GLEANINGS of May 15 is just at hand; and while I was writing something to appear in its columns for June 15, Mr. Scott (one of my men) was feasting on the good things it contains. When he came to me and asked the privilege of reading me your comments on the use of tarred paper to keep ants at a proper distance, I at once dropped that subject and took up this one in answer to your comments, in order to have it go in the morning's mail.

I do not use the paper in the brood-chamber, but outside of it, and inside the outer case. My hives are all chaff hives. Tell "Mrs. S., down in the lunch-room," to get a strong man to lift the sugar-barrel (as I suppose it is full, as all are liable to be when near a cook-room) while she slips a large piece of the tarred paper under it. The paper should be larger than the bottom of the barrel. Do not throw the paper into the barrel, as you propose. If that does not keep them away, tell her to sprinkle fine salt around the barrel.

SPECKLED TROUT.

I did write one page, telling all about our trout-fishing, but finally left it out, as you had requested me to be as brief as possible. I find it difficult to tell your readers all I wish to in the space you allow me.

VERMONT BASSWOOD; LARGE YIELDS PER COLONY.

You ask on page 402, about our basswood range. I do not think that my location is one of the best for basswood honey, and it is one of the poorest for clover of any that I know of in Vermont; yet in a favorable season it is not uncommon, in the height of clover-bloom, for our scale hives to register 8, 10, and 15 lbs. per day for a very few days. But remember, we aim to have large swarms; we work hard from early spring up to clover bloom to induce queens to lay a large number of eggs. Our basswoods are principally at the base of our mountains, and not as far up on the mountains as Bro. Doolittle's are, hence our basswood seasons are not as prolonged as his are. There are a goodly number of basswoods scattered among other timber in the valleys and over the foot-hills; but this is being cut off very fast. One factory here in our town bought last winter over 300,000 feet of basswood logs. All were cut within range of my bees, hence I may not be able to report 33½ lbs. per day this season, although I shall try hard to secure 50 lbs. in one day. If I do succeed in reaching 50 lbs. I will tell you how it is done. It is all to be gathered by one queen's progeny.

I hope, Mr. Root, you will some day favor us Vermonters with your presence; and if you should visit us in the trout season I assure you we will try to give you a feast on speckled trout, and will try to fill your pockets with spruce gum to take home to the children. And I now invite you and yours to make us a visit whenever you can spare the time.

Bristol, Vt., May 21, 1889. A. E. MANUM.

Thanks, friend M., for your kind invitation. Possibly I may be able to call on my friends up your way next season. This fall, you know I am to look over Wisconsin and the adjacent territory. In regard to basswood-trees, I do not feel satisfied, because there are so few planting them. Our trees are now looking very handsome, and Ernest has got into pretty fair running order what we call the "Basswood" apiary. My dreams of 17 years ago, we expect are to be realized this season; i. e., seeing bees store honey from trees over their own hives, and said trees to be of my own planting. Unless we do plant basswood groves, bee-keeping, to a large extent, must go down. Now, brethren, please remember that these are the words of Uncle Amos.

A BIG TESTIMONIAL IN FAVOR OF PERFORATED ZINC.

SHALL WE DESTROY GOOD DRONE COMB, OR USE IT WITH PERFORATED ZINC?

AFTER reading what my neighbor L. E. Mercer said (see page 358) about zinc honey-boards, I started for the apiary to see how the one I got from you by mail this spring was doing. I put it on over a rather small but prolific queen, and filled the super with part drone and part worker comb, and this is what I found: The super was about half full of honey. The drone-cells were empty, and cleaned up for the queen to lay in. The brood-chamber of 8 combs was full of brood to the top-bar, and one outside comb was half full. There were about two dozen drones. I vote the queen-excluder economical and humane. If the queen had been allowed to go above, they would have wasted many pounds of honey in raising thousands of drones; and after extracting the honey I should have shaved the heads off those drones, which is a cruel and expensive practice. I was afraid they would make the bees swarm more, but now I think different; for the super gives plenty of room for all the bees that can be raised in the brood-chamber. My hives are ten-frame Langstroth, and the bees usually fill 8 combs in the brood-chamber and the lower half of the combs in the upper story with brood before extracting commences; but the queen is soon crowded out of the super combs by the honey. This is contraction, but I sometimes wish the brood-combs were as deep as the Quinby frame, so the queens would not need to go above for room. This might do if all the super combs were built on foundation; but in buying bees I have got a lot of nice straight drone-combs which are splendid to extract from, if the queen could not get to them. Now, the great question with me (and I wish you would pop it to the veterans this season) is, whether to melt up all those drone combs, perhaps 2000, and put foundation in the frames, or put a queen-excluder over the brood-chambers and keep the drone-comb.

THOSE ORANGE-TREES; THE IGNOTUM TOMATO.

I have just sold that little patch of seedling orange-trees that you were admiring when here—1000 trees grown one year in the seed-bed and one year in nursery rows, for $175, and have enough seed planted to raise from 10,000 to 15,000 more. I received 33 Ignotum tomato-seeds, and have 33 nice plants, transplanted and growing in the garden. That seed is good. J. F. McINTYRE.

Fillmore, Cal., May 10, 1889.

I am very glad indeed, friend M., that the perforated zinc honey-board works so well in your hands. I think I should use the drone comb, by all means; in fact, a good many prefer drone comb to worker for extracting. I am inclined to think that the bees can store honey faster in drone comb than in worker comb; and I also believe that the honey is thrown out more easily with the extractor. The only objection that I know of is the liability of gettting drone brood; but the perforated zinc board ought to remedy this entirely.—I am glad to get your report from the orange-trees. Now, this is one of the mysteries that I can not understand. The demand for orange-trees is large, and yet the prices are what I should call away up. Now, notwithstanding this, thousands of people are found all over California, wanting something to do; in fact, I am afraid that a great many of them went to California just on purpose to get a job, as they could not get one at home. I think my talk on the subject in our last issue pretty nearly solves the problem.—If you got 33 tomato-plants from that little paper of seed, I think that you too, friend M., must be an adept in making seeds grow. May be your good wife kept an eye on them. Give my respects to the little girl who climbed the mountain with her doll-baby, a good deal faster than I could do it with both hands and feet, and all my strength.

FROM DECEMBER TILL MAY.

A REPORT FROM THE GREAT BASSWOOD REGION OF WISCONSIN.

TO-DAY is about the first day that it has rained this season to prevent work, so it gives us opportunity to make a short report at this end of the route. May 18th, and 80 colonies not looked over yet this spring to crop queens or regulate frames. How is that for a modern bee-keeper who takes five bee-papers, and keeps 300 colonies of bees? I am aware that it is a good plan for a bee-man to look over his bees every month or two. I have tried to do so, but in an evil hour I listened to the advice of those who counsel a bee-keeper to have some other business to fall back on, that, in the event of his bees failing during off years, he would have some other string to pull, or some other source of income to provide for his family and keep the wolf from the door. Had I taken the advice of A. I. Root on this point, which was given somewhere in GLEANINGS, all would have been well. His advice was, to put money in the bank, where we could have it handy to draw on to tide us over during poor years. Instead of acting on this sensible plan, after considerable thought I went into the nursery business on a small scale, adding a small orchard, grapevines, small fruits, etc. Now be it known that this nursery business will take the cake for keeping a man employed 13 months out of the year. To explain how it gets in 13 months, I will say that he can hoe all summer, graft all winter, and in the months of spring and fall when he delivers his stock he will have to do two months' work in one, so that will make the 13 months. The above will explain why I have neglected my bees until this late date. Customers had to have their trees, vines, and plants, at the right time, so bees had to take their chances. Now, if any dissatisfied bee-keeper wants to exchange his bees for nursery stock let him come forward, for I am anxious to have one job or hand, and have the satisfaction of having things done in time. I was unable to visit my bees previous to last week, excepting two or three times, giving them a hasty examination, and feed where necessary to prevent starvation, being all the care they got since taking them out of cellars March 19th and 20th, excepting 60 colonies that were left in six days longer. I see no perceptible difference between those taken out first and those last. Bees have wintered well in this county generally. Mine were too warm all winter. The Sextonville lot, 219 colonies, would have made a good hot-bed if we could have utilized the heat. They were so warm that they dried up all of the moisture on the walls, and would probably have dried the sand on the bottom of the cellar if it had not been covered with dead bees. I don't see how Mr. Barber keeps his bees at a temperature of 70 or 80. Mine at 55 to 65 came out poorly. Many colonies were weak when set out, and quite a number worthless; but they had no spring dwindling. All that were good when taken out are so yet, showing that a high temperature will not hurt bees in a winter repository, if they will stay in the hive.

Up to date I have 318 colonies with queens, out of 350 put in winter quarters. They average better than last year. They have used honey rapidly this spring. We have fed several hundred pounds of reserved comb honey, in going over them this our first time. If they should need feeding again before clover, I shall have to resort to extracted honey, of which we have 1200 lbs.

The prospect here has been rather poor for clover, as previous droughts have caused a light stand; but the present rains may bring forth to advantage all there is of it. In all of my experience with bees, over 30 years, I have never known bees to swarm in April but twice. Last April was one of them. Several swarms were reported the last of the month in this county. My first and last swarms were the 4th of May. We had after that a cold and windy time of ten days duration, which checked all inclination to swarm. I see by reports from all parts of the country that a booming season for bees is confidently expected. Bees are in splendid order; white clover is coming on finely; and being the full year for basswood, a large honey-yield is anticipated. If it comes in as well as predicted, where shall we sell our honey? Judging from the way the small crop of last year filled the market, where can we find an outlet for a large and general crop? It looks as though a large crop in 1889 would put the price down where poor folks could eat it. For one I am not disposed to sell mine cheap until I see it. Eleven years ago, 1878, bees swarmed in April. They had wintered as well or better than last winter. It looked as though we were going to have an exceptionally fine season; but up to September 1st, bees

in this location had not gathered enough stores ot winter on; but afterward they got a little run, which gave most colonies enough to winter on. It is too early to predict as to basswood and mint. I will report later. S. I. FREEBORN.

Ithaca, Wis., May 15, 1889.

Judging from the above, friend F., basswood does not always yield, even in your favored locality. In our locality, the weather during fruit-bloom was more favorable than I remember to have ever seen it before. I am looking forward with considerable interest to my visit when your basswoods are doing their best.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

THE SAME OLD STORY.

FRIEND ROOT:—Inclosed I send you an article which adorned (or darkened) the columns of the St. Louis *Christian Advocate* of May 15. O my brother! how long is this great wrong to continue unrestrained? Not only is it damaging to us as bee-keepers, but it is ruinous to our influence as Christian people. Is there no way by which this iniquitous tide of envy, malice, and hatred may be checked, and we as a God-loving and God-fearing people be allowed to quietly engage in a pursuit which is in every way calculated to lift up, elevate, and ennoble those who engage in it?

SARAH E. DUNCAN.

Lineville, Ia , May 17, 1889.

I think exactly as you do about it, my good friend. The way such falsehoods are passed around looks bad for the community in general. There is a great deal too much "thinking evil." I will explain to our readers, that the paragraph sent us, alluded to in the above, is exactly the same thing as is found on page 81 of our issue for Feb. 1. It does seem sad indeed, that two such papers as the Lutheran *Observer* and the St. Louis *Christian Advocate* should be guilty of such wrong and injustice. If it were a blunder, why can they not for Christianity's sake, if for nothing else, set their readers right with a suitable apology?

THE ENCYCLOPEDIA BRITANNICA, AND ITS MANUFACTURED COMB HONEY.

I have just received my third volume of "*American Supplement*" to the *Cyclopedia Britannica*. By accident I first opened the book at the word "glucose," page 537. Beginning in the left-hand column, 21st line from the top, I read as follows: "Glucose is used chiefly in the manufacture of table syrups and confectionery, in the brewing of ale and beer, and to some extent as food for bees and in the making of artificial honey. No reliable statistics can be had as to the quantity used in brewing, since brewers seek to conceal the fact of its employment. When it is fed to bees, the honey yielded by the bees is almost pure glucose. In artificial honey-making, the comb is made of paraffine and filled with pure glucose by machinery. For whiteness and beauty it rivals the best white clover honey, and can be sold at less than half the price. Its one defect is, that it is not honey." Chas. Morris, of the Philadelphia Academy of Sciences, is the accredited author of the above statements. After reading the article, my opinion of the Britannica's accuracy was lowered about 100 per cent, and I certainly would never have purchased it had I read the above sooner; for, if containing such strikingly erroneous statements on this subject it could not be thought reliable on any other, unless further examination proved to the contrary. C. NYSEWANDER, M. D.

Des Moines, Ia., May 12, 1889.

Why, friend N., it is absolutely awful to hear that this false slander that you mention on our industry has got into a cyclopedia. The address of the publishers is J. M. Stoddart Co., Limited, Philadelphia, Pa. We shall write to them at once, sending them this statement, together with other facts in the matter, and our card offering $1000 reward, etc.; and I heartily wish that we could persuade every bee-keeper in the land to write them a protest. Have it scattered far and wide; and, if it is a possible thing, make them paste some slips of paper, setting forth the truth, over this paragraph, in every volume published. Besides doing this, the publisher should send a circular to every one who has purchased a volume. I do not believe in "boycotting," as the term is generally understood; but I do believe in putting a stop to this matter of publishing hearsay as science. If somebody should step on your corns you could forgive him, because he did not mean to do it; but if he continued to blunder in this awkward way, day by day, he should be fined, and, if need be, imprisoned until he learned to be careful. Now, then, let us wake up and make ourselves heard. Had we not for years been at work in the matter, there would be a more reasonable excuse for the Britannica folks to say they did not know any better. If the man who writes about bees, for an encyclopedia, has not enterprise enough to hunt up some genuine bee-men among his acquaintances, in his vicinity, he *deserves* to suffer.

SOME GOOD SUGGESTIONS FROM FRIEND POPPLETON.

TIMOTHY CHAFF VERSUS MANY OTHER KINDS, ETC.

FRIEND ROOT:—The contents of May 1st GLEANINGS suggests a few ideas, most or all of which are old ones, but seem to be new to some of your readers. On page 340, friend Manum advises against spreading the brood as early as May 10, but thinks it well to do so during the honey season. My idea is exactly the reverse of this. We want all the bees raised that is possible before the honey-flow, and as few as possible during the flow. I have followed this practice nearly ever since commencing bee-keeping, and have found it good. I am in thorough accord with what friend Doolittle says on this subject, on page 352.

On page 364, Ernest tells of starved bees on account of a cold snap. Did this occur in your chaff hives? If so, you have had an experience that I never had in my dozen years' use of such hives. I have frequently contended that chaff hives are worth all their extra cost, for this feature alone.

I was surprised to see on the same page that you and others have only just dispensed with loose chaff over your bees. I supposed I had called your attention to this point years ago, in the columns of GLEANINGS, but I may have overlooked doing so. Don't make the cushion a little but a good deal larger than the top of the brood-chamber, and a clear space should always be left between the top of the cushion and cover of the hive. This prevents accumulation of moisture.

On page 360, friend Freeman asks some questions about timothy chaff being suitable for packing bees, and in your foot-note you say you "suppose any thing of that sort will do about as well," and you "think timothy chaff might be a little more apt to pack down tight and get moldy." Please excuse me if I say that you are decidedly wrong in both of those ideas. You will find a column article from me on this very subject in GLEANINGS for 1882, page 326. During the first years of experience with chaff hives I tested all the different materials for packing that I could get conveniently, and found them of value in the following order. 1. Timothy chaff; 2. Fine sawdust from dry pine; 3. Wheat chaff; 4. Oat chaff; 5. Buckwheat chaff. I never tested ground cork, but I think that would be superior to all other material. I found that timothy chaff, freed from straws and other coarser materials, would remain dryer during winter than any of the other materials would, showing that it gave better protection from the cold than did other materials. Oat chaff seemed to have a wonderful affinity for moisture. I presume that many failures in the use of chaff hives have resulted from the use of improper materials, or from not using a sufficient quantity of packing. To be successful in the use of chaff hives requires the use of proper materials, of skill, care, and judgement, the same as does the use of any other method of wintering.

In your notes to question 121 you speak of so few saying any thing about seeing swarms go off without clustering at all. The question gave no suggestion of this point, or more could have mentioned it. I knew at least two instances of such in my own apiary. One of them, a prime swarm, commenced to issue while I was standing close by the hive, and I saw it start directly for the woods. It spent no time fooling around in the air, as swarms usually do before clustering.

On page 355, friend La Montagne tells of a large flow of honey from orange-bloom. I have spent four springs in Florida and two in Cuba; have watched the orange-blossoms very closely; have made many inquiries, but have never seen, and this is the first I have ever heard, of such a flow of honey from orange-blossoms. They yield more or less honey, of course; but I judge much less than is done by fruit-blossoms in the North. It would not be wise for any one to commence bee-keeping anywhere on the strength of large expectations of honey from orange-flowers. O. O. POPPLETON.

Havana, Cuba, May 15, 1889.

I felt pretty certain, as you say, that honey from orange-blossoms is rather an exception than the rule. When our attention was first called to the matter of bee-keeping in Florida, there was considerable said about orange-blossom honey; but as years passed, and no considerable quantity was reported we began to think it was a mistake. When friends Baldensperger, however, on the Mediterranean, gave their report we were forced to conclude that the orange-trees on the Mediterranean produced honey, whether the rest did or not; and now we are glad to know that pure orange-blossom honey is a reality and not a myth. I think, however, that, on account of its rarity and excellence, it ought to command an extra price. We are going to try to get an extra price for what we purchase, if we can. If we can't, why, I suppose demand and supply will have to fix the price. —In regard to the starved bees spoken of by me (Ernest), I would say that the colonies in question were in regular two-story chaff hives. As I stated on page 364, the bees and brood were on one side of the brood-chamber, and the honey on the other. The colonies were average in size. They had reared so much brood that all the bees were required to cover it; and during a cold snap of weather they refused to abandon it. We have had this thing happen repeatedly, though the loss from this source is comparatively slight. I can not explain why you never had such an experience; but, as usual, I shall have to lay it, in the absence of any thing better, to the door of "Locality." Our proof-reader says, that the next time we must lay up to "electrical conditions." In regard to the timothy chaff and dispensing with loose chaff, you doubtless called our attention to the matter, but, like many other good things, it "got overlooked" in some way. Even editors can't remember all that has been said and done in times gone by, but they are glad to have good friends remind them.

WHY DO BEES SWARM?

WHAT SHALL WE DO TO MAKE THEM LESS LIABLE TO SWARM?

I WAS interested to an unusual degree in reading the replies to questions 125 and 126. Years ago many were asking, "How can I get the most increase from my bees?" Lately, the matter of *preventing* increase has been much discussed. Some have gone beyond that, and care little to know how to prevent increase, but are very anxious for an answer to the question, "How can I best prevent swarming?" I think you will find this question coming very prominently to the front in the near future, especially if out-apiaries continue to increase. Now, questions 125 and 126 have a bearing on prevention of swarming; for if we knew exactly where the swarming impulse originated, and the necessary conditions to induce swarming, we might the better know how to avoid those conditions. I know very well that there is a common belief that better results can be obtained by allowing swarming, and that no other colony works with the same vigor as one newly hived. Whilst this *may* be true, I don't believe it is. At least, I think it possible that we may learn to prevent swarming, and at the same time get just as much surplus. But, you say, swarming is *natural*, and we must follow nature. I believe in following nature, probably, about as far as any one; but even those who cry out most loudly for nature, don't let every thing follow its natural course. Let's see: "It's natural for bees to swarm, so we must let them swarm."

All right, my friend; but it's just as natural for the swarm to go off, so we must let it go off. At any rate, I think I would give more to find out the best possible way to prevent swarming than to find out any other one thing connected with bee-keeping. In the answers given to the two questions, there is considerable agreement. Only in the last answer, Hasty starts off on a track all by himself, and says that there is probably only one necessary condition to induce swarming—"a turgid condition of the vessels in the bee anatomy in which are stored the supplies for future brood-rearing." Is the man crazy, or only a natural born fool, to fly off in that sort of style? Well, if you take Hasty for a fool you are altogether too *hasty*. I confess I had never thought of just the reason that he gives for swarming, but I *had* thought about some things closely connected therewith. I think generally, if not always, the hive from which a swarm has issued for me, has been found to have an unusually large quantity of its brood *sealed*. Have others found this to be generally true? If so, Hasty's theory would say, "The bees have been feeding a large quantity of brood, and somewhat suddenly they find the brood all sealed, little young brood to feed, and no place to dispose of the food they have secreted in such abundance for the larvæ. So, in some way, this engorgement leads to the swarming fever." I once had a colony swarm when put on nothing but foundation, leaving nothing in the way of brood except one egg in the queen-cell. They had been baffled several times in the attempt to swarm, each time having a part of their combs taken away. Perhaps Hasty's theory, if I have interpreted it correctly, might apply to this. It is commonly believed that a young queen is much less likely to swarm than an old one. Try Hasty's theory on this If a queen from old age should suddenly drop off in her laying, the nurse-bees are checked in their feeding, and engorgement occurs. But I have had a young queen swarm before she had been laying a week. Say No. 1 with an old queen swarms and is returned to the hive, and the queen replaced by a queen taken from No. 2, this latter queen having just commenced laying. If the swarm issued because the cells were filled with sealed brood, a change of queens does not make any difference in the condition of the turgid vessels, and this young queen comes out next day with the swarm; whereas if she had been left in No. 2 she would not have swarmed that year. As a general rule, a young queen is not so apt to swarm; but is it not because, commencing later in the season, there is never that condition of affairs in the brood-chamber that prevents the nurses from disposing of all the food they have prepared? Here's an experiment that might be worth trying: From a colony that has just swarmed, take away its frames of sealed brood and give it frames of unsealed brood, either before or after the swarm with its queen has been returned, and see whether it will swarm again. I have failed so many times in trying to thwart a swarming colony, that I am not sanguine about the success of this experiment. Indeed, I'm not sanguine about ever knowing how to successfully prevent swarming; but I'm anxious to learn all I can about it.

Marengo, Ill., May 22, 1889. C. C. MILLER.

Friend M., I once gave you quite a talking-to for using rough language when you were in fun, and I feel just like scolding you now. I remember very well indeed that queer expression of Hasty's. I said to myself, "Well, what does the fellow mean, any way?" but I afterward reflected that Hasty is by no means one of the kind who purposely mystify. I did not follow the idea very much, but I did have a dim impression something in the line you have interpreted it; and I believe you have got it about right. The bees swarm because they are in the right condition, and all loaded up, as one might say, to raise great quantities of brood, and, lo and behold, there is not any brood except that which is sealed; and oftentimes there are not any cells to clean out, that the queen may start some more. At this crisis the house is too small; the accommodations are altogether too limited, and without relief in some direction the great business of populating the world with their own kind must come to a standstill. Nature herself has made provision, as she always does, by a sort of safety-valve. When the pressure gets up to the proper limit, open goes the valve, and off goes the steam in the shape of myriads of bees pouring out over the hives with a great jubilee, all hands eager for the new enterprise. Now, good friend Hasty, I beg pardon for taking the matter out of your own hands, and putting my own interpretation on it; but I have done so, taking it for granted you would supply the missing links, and set me right where I am wrong. Now *you* have the floor. If Dr. Miller says any more saucy words, I will scold him some more.

WINTERING BEES OUTDOORS.

PLENTY OF STORES, AND PROTECTION FROM WIND, PRIME ESSENTIALS.

I WILL mention a few things that I think we must have, to insure success. We want some sort of a windbreak, such as a good grove of timber or high hills, or a high board fence. It is hard on the bees to have a strong wind blowing into the hives in cold weather. In the spring time, when the bees come out for a fly they should be protected from the wind as much as possible. Then for me I want a quadruple hive, chaff lined all around the sides and over the bees. Putting four hives together is a great help to save heat and keep the little folks comfortable.

But the most essential of all things is an *abundance* of something good to eat. *Good* honey is good enough, if there is enough of it. I am satisfied that we have lost more bees (since I commenced keeping bees) by scarcity of honey to winter on than from all other causes combined. Our motto from this on will be, that a great deal too much honey is just enough. There is nothing lost by letting them have more than they will use up. If it is not all used up before we start the extractor, the next year we will get it then. Bees won't breed up fast in the spring if they are short of feed. They may pull through in a weak condition, but be of no use as far as gathering surplus is concerned; when if they had had plenty of feed in the spring they would have built up strong and been a profit to their owner. Now, I believe in feeding during the spring months, if I have to, to save the bees and build them up for business; but I don't like to be obliged to do it. I don't like to be feeding bees in

the spring of the year. I want the hive to contain feed in the fall—enough to last them until white clover will give them a living the next summer. The best time to get the honey in the hive is when the bees are gathering it from the flowers. We have to give our bees their winter supply from the basswood, as, after that, our location will give them only enough for their living, and sometimes not that. Now, to extract all the honey we can, and at the same time not take too much and leave the bees short, is a nice point to decide.

We sometimes get caught on account of rainy weather at the close of the basswood season, and have to feed back, if we find the bees are short of winter stores. The earlier we feed back, the better. During the last of August or first of September it is better to give the bees more than we think they will use; for we can not tell what kind of a winter we are preparing for, but give them enough. It won't do any hurt if they have more than they can use. If they don't use it up we shall get it the following spring. Bees will stand a great amount of cold, if they are out of the wind and have plenty of feed over them. I want my bees to cluster on empty combs below the honey. They will follow the honey up as they use it.

During the fall of 1887, about the first of September we looked over our bees to see if they had plenty to carry them through the winter. We found one yard of 70 colonies, that did not have as much honey as we wished they had, but concluded they would do until spring, and then feed if we had to. We missed it, for that yard came through the poorest of any we had. The bees were weak, and had but very little brood. The honey was scarce, and we fed 500 lbs. As a result, the bees got into good working condition late, and that yard gave the poorest returns of any we had. Better fed in the fall. E. FRANCE.

Platteville, Wis.

I quite agree with you. I have never seen any bad result follow from having too many bees or too much stores; and I am confident that bees base their calculations, and go to work somewhat in accordance with the amount of stores they have to back them up. In our locality, like yourself we seldom have any thing of any account after basswood closes.—Windbreaks are of very great importance, not only for bees, but for farm stock and plants and crops.

PYRETHRUM AS AN INSECTICIDE, ETC.

BEING CAREFUL TO SAY, "I DON'T KNOW," WHEN IT OUGHT TO BE SAID.

MR. EDITOR:—You ask if pyrethrum would not kill the itch-mite; and you add that it kills all kinds of insects. This is a mistake. Pyrethrum does not kill many bugs and beetles. I have tried repeatedly to kill the squash-bug with buhach, or California pyrethrum, but with no success. Buhach, in that it is entirely non-poisonous to higher animals, is one of our best insecticides; in that it does not always kill the insects, it is objectionable. I should hope that it would be fatal to the itch-mites; but they are so concealed that possibly it would not molest them at all. It is very quickly fatal to higher insects, like bees, ants, wasps, flies, and moths and butterflies.

CARE IN GIVING STATISTICS.

Some time ago a report from the Department of Agriculture stated that the chinch-bug had done serious damage in five counties in Michigan. I did not believe this was true. In all my collecting I never yet took a chinch-bug in our State. In one of these counties I had lived, and I was certain there was an error. So I wrote to the Department, and learned the names of the reporters. I at once addressed each a letter as follows: "Do you know the chinch-bug? Do you personally know that it has ever worked in your county? Why did you report ravages from this insect in your county to the Department of Agriculture?" Three of the persons answered. The other two paid no attention to my inquiry. The three reported that they did not know the insect; that they had no personal knowledge on the subject, and did not know that they had so reported.

What are statistics worth, if we are to have such reports? If we don't know enough to answer any question, why not say so? It seems to me that such answers are seriously mischievous. Now, I was reminded of this in reading answers to Query 125, p. 411, GLEANINGS: "Does the swarming impulse come from the queen or workers?" I like the two first answers: "I guess so." We should know that our humorous friend from Toledo got that off, and spontaneously too. The next writer says, "I don't know." Of course, he doesn't. No one does. One says, "From the workers;" another says, "First swarm from workers, second, etc., from queen." Now, I don't like these answers. Why say just how, when no one knows? I believe friend Doolittle answers correctly, but I don't see how he can speak so positively.

Now, I do not wish to criticise, only to suggest that we all say, "I don't know," or "I think," in all cases where we have not positive knowledge. In such cases as the above we can at best only give opinions. A. J. COOK.

Agricultural College, Mich.

Friend C., I am exceedingly obliged to you for both pieces of information. It has been so repeatedly said, especially by advertisers, that pyrethrum kills *all* insects, that I had somehow taken it for granted; and yet I ought to know that it does not kill flea-beetles nor the striped squash-bug; but I supposed it was because I could not give them enough of it. Where flies, mosquitoes, moths, and every insect I have found in our rooms, were treated with the dust-bellows, they always died promptly, and I thought that perhaps these other fellows would also die if we could get them shut up in a room.—In regard to your remarks about saying we don't know, I am going to try to profit by it. But let me suggest that some of the brethren *thought* they knew. As an illustration, I once thought I proved beyond question that the queen leads out the swarm; but pretty soon I had just as plain proof that bees lead out the swarm. First, I *knew;* and then after a while I didn't know. Perhaps it will be well to say we *think* we know, and then give our reasons.

GETTING BEES TO WORK IN SECTIONS.

SOME TIMELY HINTS FROM FRIEND DOOLITTLE IN REGARD TO THE MATTER.

A CORRESPONDENT from Pennsylvania wishes to know how he can get his bees to work in sections when they refuse to do so, and asks, "When the bees refuse to work in sections, and crowd the queen by placing too much honey in the brood combs, can they be made to go into the sections and work, by placing uncapped honey in the brood-nest?" As this question of getting the bees to work in the sections is an important one, and thinking an answer to it might be of interest to the readers of GLEANINGS just at this time, when we of the North are about putting on sections, I will answer the correspondent through your columns, Mr. Editor, with your permission, as the correspondent says he is a subscriber to your paper.

Of late years the idea has prevailed, in some minds, that all that is necessary to get the bees into the sections, is to reverse the combs in the hive so as to get the honey which is generally in the tops of the frames, at the bottom, so that the bees would uncap the same and carry it up into the sections; and I presume that this is in part what gave our correspondent the idea he has of placing unsealed honey in the brood-chamber. I have had very little experience with reversing frames, that little being against the process, except so far as the getting of the combs built out to the frames all around was concerned, but I have tried several times to get the bees to work in sections sooner than they otherwise would, by uncapping the honey which was in the hive and changing the fullest combs to the center of the hive. One year I had three very strong colonies at the beginning of the honey harvest, which had more honey in the brood-chamber than I thought they should have; and being anxious to secure as much honey as possible in sections, I thought to make them take this honey from the brood-combs into the sections by the plan suggested by our correspondent. So I went to work and uncapped all of the honey in one of the hives, at the same time taking away two combs of brood, and placing, instead, two frames which were full of honey, after uncapping it. Not to be badly caught, I thought I would do this a day or two before I served the others in the same way, to see how the plan worked. In less than an hour the most of the bees were on the outside of the hive, badly daubed with honey, as the weather was quite warm at the time. The next morning the most of the bees were in the hive again, but there was no work being done in the sections; only a few bees loafing about there. The third day I opened the hive to see what had become of the honey, and, behold, quite a share of it was being sealed up again, and nothing in the boxes, the bees having changed it about only a little to get it in the part of the hive where they wanted it. Thus failing to accomplish what I desired to, I went to one or two colonies which had commenced to work in sections nicely, and took two boxes of sections, bees and all, and placed them on top of each of these hives, and, to my delight, comb-building was commenced in the other boxes within twenty-four hours, which work soon spread to the whole part of the sections. When the sections were two-thirds full I examined the hives, and, to my surprise, I found that the bees had unsealed and carried to the sections one-half of the honey below, and in place of it there were plenty of eggs and larvæ. Thus I learned that bees could be coaxed into sections more easily than they could be driven. Although this was several years ago, yet in every trial which I have conducted along this line, the results have been fully as unsatisfactory where I tried to compel the bees to carry unsealed honey from the brood-chamber into the sections.

One other thing which I learned, and a thing which later experience has confirmed, is, that when bees are at work nicely in sections there is no danger of the queen being crowded with honey in the brood-nest. Now, suppose I had extracted the honey from the brood-nest, as some would have us do when bees refuse to work in the sections, what would have been the result? They would have simply filled the space again, not going into the sections at all, for the simple reason that there was no need of working in the sections as long as there was plenty of room to store honey below. I have so far failed entirely to get extracted honey and section honey from the same colony of bees at the same time; and if any one can succeed in doing this, I confess I do not know how it is done. This extracting from the brood-chamber when working for section honey is very much like trying to secure section honey from a very large brood-chamber from whose combs the bees have consumed the most of the honey the winter previous. In this case the bees would begin to store honey largely at the beginning of the harvest in the empty comb still in the lower part of the hive, and there would be four chances out of five in favor of their continuing to do so till they had nearly crowded all brood-rearing from the hive, resulting in no section honey and a very small colony for winter. The extracting of honey works in the same way so far as the sections are concerned, but it gives a good colony for winter. Sometimes a colony will not work in sections by giving bees and partly filled sections as above; but there is one plan that I have never known to fail: In obstinate cases, get some drone brood and fit it into one or two of the sections, placing them in the center of the section cases; and if honey is coming in from the fields, and your colony is in a condition to work in boxes, you will see them start on either side of this brood at once. After the brood hatches, the bees will store the comb with honey, which will have to be sold as second quality; or you can extract the honey and throw the comb into the wax-extractor as you please.

G. M. DOOLITTLE.

Borodino, N. Y.

The results of my experiments in this line agree almost exactly with your own. Whenever we used to find a section of drone brood in it, instead of lamenting we used to regard it as a prize, because by means of it we could readily coax the bees up above, from almost any colony. In fact, I have by such means coaxed them above when they really had neither bees nor honey enough to warrant their going above at all. Perhaps reversing the combs, in connection with some sections that had been worked on, from some other hive, might answer. It certainly is of great importance that bees be induced to commence in the sections when

honey begins to come in. A little stubbornness at such a time may result in a big loss to the owner of the apiary.

BEE-DRESS.

W. L. COGGSHALL'S BEE-DRESS.

HOW much better it is to have things right, and how much pleasanter it is to use them, and how much more we can accomplish in a day! I know we are creatures of habit. We all have a way to do any particular thing, and always (so we think) a better way than any one else. If any of you who read this will suggest any improvement, it will be very thankfully received, and you will be recompensed for so doing.

COGGSHALL'S BEE-DRESS.

My idea of a bee-veil is shown in the accompanying photograph. It is simply a wide-rimmed straw or leghorn hat, with a stiff rim (I right here went and got my hat to give you measurements). The rim of the hat is 4 inches wide; the length of veil, up and down, 18 inches, and the material is bobinet or millinet, black. I sew the veil on the under side of the rim of the hat, 2 inches from the outer edge of the rim, thus giving a 2-inch projection to shade the veil, so that I can see at any time; for if the sun strikes the veil, I can not see eggs in the cells. I use a flat shoestring for a shir, or take-up, around the neck, and have all of the gathering in the sides and back of the veil. I sew the veil fast to the string. The shoestring is long enough to tie under the collar, so it is impossible for a bee to get to your face. There is not much gathering in front to obstruct the vision.

When I am not in the bee-yard, or going from one apiary to another, I untie and tuck it in the crown of the hat, and it is out of the way, and all ready at a moment's notice, which we all know is very convenient sometimes.

For hand gear or false sleeves I use colored shirting. After they are made, dip them in linseed oil; hang them in the sun till dry, then the bees can not sting through them. I have a rubber elastic in the upper end above the elbow, also the one that is around the hand; have a thumb-hole worked in above the elastic, so that the hand is all covered, except the thumb and fingers (like a mit), only the fingers are all together. With sleeves made in that way, bees do not crawl up my arms and make me uncomfortable, and give me pain.

W. L. COGGSHALL.

West Groton, N. Y., April 21, 1889.

Now, friend C., although we are very much obliged indeed for the sketch you give us above, we do not like it a bit because you did not say any thing about that broom. If I recollect right, you told me at Utica that you had a variety of soft broom corn, and that you made soft brooms for the sole purpose of brushing bees off from the combs; that you preferred them to the yucca brushes, the Davis bee-brush, or any thing else that had ever been brought out. You see our engraver has made the broom quite a prominent object. We also wanted to know something about that thing in your other hand. Is it a smoker, or what is it? Tell us about these two implements, with all the particulars, just as you have about the veil and the sleeves.

THE BUTCHER BIRD.

A HARD-HEARTED AND BLOOD-THIRSTY MEMBER OF THE FEATHERED TRIBES.

MR. JULIUS JOHANNSEN, Port Clinton, Ohio, writes me in effect as follows:

I send you two black insects (crickets), which, as you will see, are impaled on the short sharp twigs. I took them from my quince-trees. There are many such imprisoned, or, rather, pinned to the tree. Some are dried up, though the two I send you were alive when I found them; and when I severed the twigs from the trees I supposed at first that their impalement was the result of accident; but as I find so many I conclude that some enemy (of the victims) has done this. I have watched closely to discover this jailer, but so far in vain. I think he must work at night, as early in the morning I find most of the fresh victims alive.

To-day I found the large insect (a dragon-fly) hanging to a quince twig. I thought him the one that sticks the others on the spines. As I caught him he dropped a yellow mass which I suppose was made up of eggs, as I find it on the impaled insects. Now, "kind friend," this is quite likely a law of nature that you are entirely familiar with; but it is a great mystery to me, and is doubtless the same to most readers of GLEANINGS; so will you explain the matter in that journal?

Again, are these insects in any way connected with the borers with which my quinces are badly infested?

Oh yes, friend J., I am well acquainted with this curious freak of nature. There is much humor—many jokes—often cruel ones like this of which you write—in nature. And it is this humor, together with the many strange methods by which nature does her work, that gives this study its rare and irresistible fascination.

The cruel persecutor in this case is the well-known butcher bird (*Collyrio borealis*). This bird is also known as the "great northern shrike." It is about the size of the robin, light blue in color, with black tail and wings, and a short black line from the bill through the eye to the base of the neck. It is white beneath. It is slim, strong, and, although a song bird, or percher, yet in its strong feet and hooked bill it reminds us of the birds of prey—the hawks and owls.

In habits this bird is a cruel joker. It catches insects, and even mice, frogs, and birds, and hangs them up on sharp twigs and thorns. Now, if this were simply a provident habit, saving up for times of scarcity, we could forgive his birdship—we certainly could if he would kill his victims before he hangs them up in this excruciating style. But in all my observation I have never seen him take and use any of his victims after they were impaled. It would seem a sort of fiendish sport, and we can hardly doubt but that this bird is a most fit subject

to report to Bergh, as worthy prosecution for cruelty to animals. Yet so long as we see horses, poor, lame, and starved, and yet forced to hard labor under the spur of the cruel lash, we must not berate these birds too severely. It is a very sad fact, that cruelty is not limited to the lower ranks of animal life. It is posible that the shrike may, upon occasion, take and feed upon his impaled victims; but he is so industrious that he can usually obtain enough fresh material for his mate and fledglings. In the rare cases when his hunts are fruitless he repairs to his thorn-bush larder—and so his young are still provided for.

The large dragon-fly found by Mr. J. had no relation to the impaled insects. The dropping from this insect was fecal, not eggs. The darning-needle lays its eggs in water, not in trees nor on other insects. The borers which infest Mr. J.'s quince-trees are in no way related to the insects sent. There are three kinds of beetles that bore or tunnel the quince. These can be kept off by the use of the soap and carbolic-acid mixture, as previously described. A. J. COOK.

Agricultural College, Mich.

Friend Cook, your statement is, to me, astounding. Were it not as you say, that entomologists are agreed in this matter, I should stick to it pretty stubbornly that you had made a mistake. That a bird should take live animals, and impale them on sharp thorns simply for amusement, is something to me unheard of; and it appears from friend Johnson's statement that the vicious bird actually puts them on while they are alive, and leaves them squirming in agony—that is, if insects suffer as we do. Ernest suggests that the phenomenon may be something akin to the way cats play with mice before they kill them finally.

UNFINISHED SECTIONS.

GOOD REASONS WHY THEY SHOULD NOT BE USED.

MUCH has been written in GLEANINGS of late in favor of using sections filled with comb left over from the preceding season. Some of the writers have contented themselves with simple argument. Others speak from a knowledge born of indefinite experience, while some point triumphantly to two or three experiments which to their minds settle the whole thing. A question of this kind can never be settled by mere argument. Practical experience alone can decide, and I do not remember a single experiment quoted in favor of their use which was carried on in such a way as to be at all conclusive. To really prove any thing, an experiment must be made on a scale large enough to overcome individual variations and under varying conditions. It proves nothing to say that you put a case of unfinished sections on one hive and a case of new sections filled with foundation on another, and that the first case was filled sooner than the other, or that it looked just as well. I used one year about 500 sections filled with comb that were of an altogether different make from those filled with foundation. These partly finished sections were scattered all through the apiary, taking pains to have them impartially distributed, not only in every hive but in nearly every wide frame which I then used. On account of the difference in sections, every box of honey built on these combs could be distinguished wherever it was seen, from those built on foundation. The result showed that, on an average, the sections containing foundation were finished sooner than those containing comb, and were moreover much nicer in appearance. This experiment, I think it will be admitted, was fairly conclusive. Still, thinking that the variation of seasons might change results, I have tried substantially the same thing every season since, and always with the same results. I shall try it again this season, in the chance of learning something more on the subject, and I hope all who wish to learn for themselves, or are at all skeptical on this point, will do the same. Let every case of sections you prepare for the season's use contain a certain definite number of partly finished sections, placed in a certain part of the case. Compare these sections in their growth and completion with those in the corresponding part of the same case, and average the results. When you take the honey from the cases, put that stored in old combs by itself. If you can not make a distinction, before the honey is sold, between that in new and that in old combs, why, then your experience will be very different from that of mine. My experience has been each year, that it not only costs more to have honey stored in unfinished sections, but that the honey, when finished, is not worth as much. Nearly all such honey must be graded as No. 2, which with me brings usually two cents per pound less than No. 1. Of course, if all the cells must be lengthened out much, the outside is new comb, and will look well enough; but it is very seldom that a section *filled* with comb will make a really nice section of honey.

Some claim that it is a great advantage to have at least one or two sections of comb in every case at the beginning of the season, as "bait combs," to attract the bees into the supers. This may be of use at times, though I have seldom seen the need of it. However, for other reasons, I prefer to have the bees store their first honey in extracting-combs, so I have been in the habit of placing a shallow set of combs over each hive and removing it as soon as they were well at work in them. Not having enough of these cases to go around, I have this year made extracting-frames which interchange with the section-holders in a case like that of your Dovetailed hive. They are so made that combs cut from unfinished sections will fit in nicely, fastened with rosin and wax, or twine. One of these will be placed in each super. When filled, the honey will be extracted and the combs stored away by the superful ready for a sudden honey-flow; and as the end of the season approaches, they will be returned to the hives in such a way as to largely lessen the number of sections left unfinished. In this way I kill several birds with one stone.

Dayton, Ill., May 10, 1889. J. A. GREEN.

I am very glad indeed that you have brought this matter up. It has seemed somewhat of late as if the whole thing were to be abandoned as a mistake; but I can not see how it is possible, when we had so many direct testimonies from practical honey-producers, at conventions held winter before last. I had supposed, however, that it was generally agreed that one or two sections, partly filled with comb from the year previous would certainly be an inducement

for the bees to make a start at the commencement of the season. Now, can we not have a good many experiments made during the coming season, and made exactly in the way you have mapped out.

HOW TO RAISE BUCKWHEAT.

BUCKWHEAT IN ILLINOIS.

EVER since keeping bees I have raised from 5 to 16 acres of buckwheat; and the amount per acre, as near as I can remember, has been 10 bushels. In this locality, which is the western part of Central Illinois, we want to sow about the 4th of July; if sown later, it is in danger of being cut off by the frost. I usually sow three pecks per acre, and get best crops from land plowed shallow in the spring, and then broken deeper just before sowing. About one year out of three it pays better than any other crop on the farm, and about one year out of five is a complete failure. When I get the largest crop of grain we usually get the largest amount of honey from the flowers.

For four years now, I have been sowing rye in the fall. Immediately after the crop is matured and taken off, I put the ground to buckwheat. I am not quite so certain of getting a good yield, but two crops a year of grain and one of honey will more than overbalance the difference in the yield. If I wait the thrashing of my other grain until buckwheat is ready, the other grain is liable to spoil in the stack. Sometimes I have thrashed the other grain when it was ready, and thrashed the buckwheat when it was ripe; but that necessitated getting up two sets of hands, which I found expensive; so, year before last I tried thrashing it with flails, myself and two hands, which I found much cheaper, but quite tedious, as it can not be flailed out unless very dry, which in a wet year might occasion quite a loss. Last year I bought the cylinder, and the frame on which it runs, of an old thrashing-machine (for a trifle), which I used as an old-fashioned chaff piler. I just threw the belt from my two-horse tread-power on to the pulley of the cylinder, and with it I could thrash as fast as a hand could pitch it on the table of the machine, which is the best arrangement I have found, and the most satisfactory. Of course, the buckwheat was not cleaned, but it could be stored in the barn, and cleaned some rainy day, or at a leisure time. I expect to raise none but the Japanese buckwheat this year, as I think it pays far better than the gray or silverhull. I have several times tried breaking my oat ground, and putting in buckwheat; but it usually gets caught by the frost, and so late flows do not seem to yield much honey. Some complain that buckwheat injures the ground, but I do not find it so; neither does it bother by coming up where I do not want it. I think this section of country is not so well adapted to buckwheat culture as is Pennsylvania and some other States further east.

L. C. AXTELL.

Roseville, Ill., Apr. 20, 1889.

BUCKWHEAT IN NEW YORK.

Buckwheat is a grain that possesses many features valuable to the farmer, of which many have failed to take advantage. It is a grain credited with the ability to grow on any soil, no matter how poor, and produce a paying crop. The fact is, there is none of our grains that will better repay sowing on good soil. Buckwheat is very sensitive to climatic changes, and especially so to an east wind and hot burning sun during the time the grain is forming. An *extra* crop can not be raised if the climatic conditions are not favorable; but there has not been a complete failure of the crop in this section since I can remember.

Buckwheat should be sown on a loose mellow soil; and a clover sod turned under is the best. It should be sown while the ground is dry and dusty, and never immediately after a rain. I believe that I lost over 10 bushels per acre by sowing too soon after a rain. Roll the ground immediately after sowing, as the grain sprouts quick, and is sometime out of the ground in less than four days.

The silverhull variety yields the best with me. When first introduced here a neighbor sowed half a bushel per acre on eight acres, and harvested 200 bushels. In 1887 I plowed under a year-old clover sod, and drilled six bushels on four acres. It came up very thick, grew tall and strong, smothering all weeds, and I harvested 160 bushels, 50 lbs. to the bushel. In this section the bulk of the crop is sown between June 15th and 25th. The fourth-of-July men have had frosted grain of late years. I have known of some fair crops that were sown in May.

Buckwheat should be cut with a self-rake reaper, and tied and set up by hand. Some use a self-binder here, but I have never seen one that did the work satisfactorily to me. Some never tie their buckwheat; but last year, owing to its standing up better, that which was tied was ready to thrash earlier, and brought 75 cts. per bushel, while much that was beaten down by rain brought later only 45 to 50.

Buckwheat being a fast grower, it requires a sufficient amount of plant-food near the surface. If the soil is deficient it can be supplied with commercial fertilizer. It must be remembered, that a sufficient amount of moisture must be present for a chemical fertilizer to help any crop. If this kind of fertilizer is used it should be drilled with the grain. I shall drill at the rate of 200 lbs. per acre on one field this year. Every one must be his own judge as to the amount required, but I would never use less than 100 lbs. per acre, of a standard brand. One rich in potash gives the best results with me. A large grower told me that, with chemical fertilizer, and depth of soil enough to cover the seed, he could raise a paying crop.

Buckwheat is mostly thrashed here now at the rate of three cents per bushel with the steam-thrasher, the farmer getting the grain to the machine, and furnishing coal for the engine. A small crop can be thrashed to advantage with the flail, or trodden out by horses, on the barn floor. It can be thrashed when drawing in the barn, or, if work is pressing, left until freezing weather. A neighbor thrashed over one acre last winter with his horses, rather than be to the trouble of getting a machine.

Buckwheat straw has a low feeding value, but it can be made to help out a ration by mixing with bran and oil-meal. It will be eaten readily by horses, cattle, and sheep, for a change. If not used for feed, it should be saved and used as an absorbent in stable and yard. The fattening properties of the grain are well known to most horse-jockeys; but the fat is of a soft nature. We fed a flock of lambs, for grain feed, a mixture of buckwheat and corn; and the result was satisfactory, both in wool and the gain in flesh. I believe it is worth one cent

per pound as a feed for sheep and poultry. We can buy the middlings at $14 per ton, so the grain is sold and the middlings fed.

BUCKWHEAT AS A HONEY-PRODUCER.

I have said nothing about the honey-producing qualities of this plant, leaving it to the close-observing specialist to state how many pounds one acre will secrete. Buckwheat has never failed to give us a good yield of honey here, sometimes an average of 50 lbs. surplus comb per colony. Some years this comb honey has sold as low as six cents per pound.

Buckwheat has a use besides producing honey, grain, and straw. It will, if sown rather thick, subdue almost any of our common and troublesome weeds; and, if sown for a succession of years on the same piece, completely eradicate them. To raise a profitable crop of buckwheat, as well as any thing else, requires some brains as well as good soil. CHAS. CHAPMAN.

Watkins, N. Y.

HINTS FROM ONE WHO HAS GROWN IT FOR 40 YEARS.

I have been growing buckwheat for forty years, on a small scale. I plow and drag the ground a month or more previous to seeding, which is, in our latitude, from the first to the middle of July. If the land is clean, sow the seed one heaping half-bushel per acre of the common varieties (I have not had sufficient experience in the Japanese to say how much seed per acre), cultivate it in, and thoroughly harrow. If it should be wet it won't matter whether the cultivating is done before or after. This cultivating is a new idea taken from an article of yours in GLEANINGS, on plowing in turnips. As buckwheat is sown about the same time, when the ground is usually dry and hot, I have no doubt but that is the way to do it. I put mine in that way last year, and I raised about three times as much per acre as my neighbors who harrowed in. The ground must be put in good condition, to insure a good crop. The time for sowing, no one can tell. It wants to be sown as late as possible, to escape frost.

NOT PAYING TO SOW EARLY.

My experience in sowing early for bees is that it doesn't pay. It is out of the proper season; blooms in the heat of summer; bees get but little out of it, and it doesn't make grain enough to pay expenses.

TO THRASH IT.

If the crop is small, lay boards on the ground; build a rail pen two or three feet high; cover over with rails; beat out with forks. I got my Japanese almost ruined last year in thrashing with a machine. It cracked the grains of the Japanese, but did not damage the other varieties. The most of the broken grains can be taken out with a sand-sieve, but I didn't find it out until I had nearly sold out. R. ROBINSON.

Laclede, Fayette Co., Ill., May 6, 1889.

RAISING BUCKWHEAT IN TEXAS; THE OLD SETTLER AND THE LAWYER.

As GLEANINGS finds its way clear off into parts where some of the readers have never seen cotton grow, it may be equally interesting to them to know that it finds its way into parts where we have never seen buckwheat grow. I planted some a few weeks ago; and the other day, when I was busy with my hoe, weeding it out, an old settler (been in Texas 52 years) leaned over the fence and called out to me:

"Risien, what's the matter with your cotton? it's not getting off right somehow."

When I told him that it was buckwheat, he said it was the first he ever saw. You see that, when buckwheat first comes up—in fact, till it commences to bloom—it looks like cotton. This circumstance reminded me of two of our good citizens (one a lawyer and the other a merchant) who became enthusiastic about farming. Each one bought a large farm. The merchant planted him a little patch of buckwheat broadcast; so when it was up well, so as to attract the attention of the lawyer, "Well," says the lawyer, "you may as well give it up right now; who ever heard tell of planting *cotton broadcast?*" I am real glad that you have asked your readers for further information about it. I was just on the eve of suggesting it to you. E. E. RISIEN.

San Saba, Tex., May 13, 1889.

TWO CROPS OF BUCKWHEAT IN A SEASON IN KANSAS.

I have raised several acres of nice buckwheat every year for my bees, for quite a number of years. I generally sow my seed about the first of May. By the 10th or 15th of July it is ripe. After it is cut and out of the way I cultivate and harrow the ground thoroughly, but do not sow any seed, for what is shelled out from the first crop will be plenty for seed. I have sown broadcast, and drilled in with a two-horse drill. I prefer the drill. As to harvesting, a self-rake machine is the best to cut it with. To cut with a mower, and rake it up, wastes too much. Last year I took my self-binder, left off the elevator canvases, and put on the bottom canvas; then I took out the roller that runs the lower elevator canvas; that let the buckwheat run off on the ground without elevating it. I had it in swaths six feet apart; that worked to perfection. If I had a small quantity I would thrash it it out with a flail, fork, or a stick; if I had a large quantity I would have it thrashed with a machine. This year I shall put in 12 acres after the fall wheat is cut. I can not see any difference in yield here, between the first and second crop. C. GEHRING.

Barnes, Washington Co., Kan., May 8, 1889.

BUCKWHEAT MORE FOR THE HONEY THAN SEED.

We scarcely ever sow a large crop of buckwheat, but we expect to sow a larger crop this season. We have been in the habit of sowing more for the honey than for the seed. We generally sow our seed the first of July, then the seed has ample time to get ripe before frost catches it. When the seed is ripe we cut it down and let it dry, then we drive along with a wagon that has a tight bed, and it is piled on the wagon, flailed out, and the straw is piled out on the field; it is then taken to a fan, cleaned, and put in bags or barrels. We have never had two crops of buckwheat in one season. This season our crop will be after the oats are cut.

Clermont, Ind., May 14, 1889. T. TANSEL.

BUCKWHEAT IN PENNSYLVANIA.

I never raised 1000 bushels of buckwheat in one year. The most in one year was 402 bushels, machine measure, in 1887. Hundreds of bushels are raised around here. The most successful way with us is to plow the ground the last of May or first of June, and harrow it. From the 20th of June till the 6th of July we drill, using a little over ½ bushel to the acre (it will take 3 pecks of Japanese), and from 75 to 150 lbs. of phosphate. Harrow the ground

again just before drilling, for buckwheat needs a good seed-bed, with plant food close to its roots. Phosphate shows more on buckwheat than any other grain. We cut with a reaper in the morning, or all day if cloudy. Sometimes we set up after the reaper, and sometimes leave it for two or three days. We set four rows of bunches together, to make it convenient to load. We thrash with a separator, using three teams to haul it to the machine. Two to four hands stay in the field to pitch it on the wagon, and one stays at the machine to help the driver pitch it to the machine. J. J. SHANOR.

Butler, Pa., April 24, 1889.

TWO CROPS IN A SEASON IN ALABAMA.

Two crops of Japanese buckwheat can easily be raised in one season by sowing the first early in the spring, as soon as all danger from frost is over. Early in the spring of 1887 I drilled about half an ounce of buckwheat, which yielded something over half a gallon of grain. This crop received one hoeing. A portion of this new grain was then sown about the first of July, and would have done well had the weeds not choked it out. This was in Northern Alabama.

The next year I sowed to "new ground" early, and by the 23d of May it was from 1 to 2 feet high, at which time it was literally cut to the ground by a severe hailstorm. As the plants were yet young and tender, many put forth suckers, which, with what survived, yielded well by oat harvest. A portion of this first crop was immediately sown to oat stubble, and yielded a handsome crop of well-matured grain before frost. This was in Northern Arkansas. A. P. STAIR.

Wolf Bayou, Ark.

THE TIME TO SOW, DURING CHESTNUT-BLOOM IN NORTH CAROLINA.

We always sow our buckwheat when the chestnut-bloom is white, which in this latitude is commonly about the first of July, sometimes sooner and sometimes later. We have tried sowing in May, but with poor success. The hot June and July sun caused it to blast. By sowing during chestnut-bloom, the time of filling comes during the cool nights of August, and when bee-forage is scarce.

Dark Ridge, N. C., Apr., 1889. G. W. MCGUIRE.

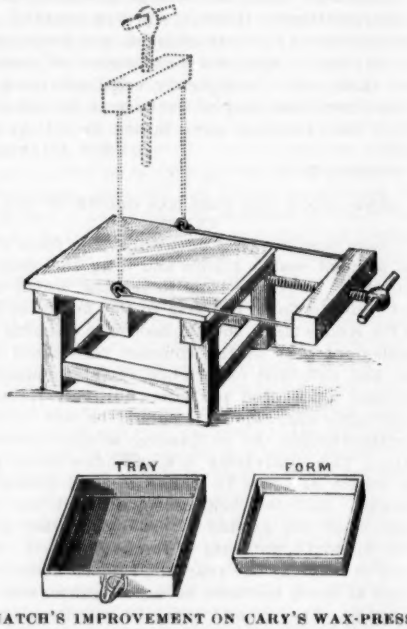
RENDERING WAX WITH A PRESS.

THE ADVANTAGES OF THE PRESS, ETC.

PERHAPS you may remember I have always advocated the Cary wax-press as the best thing to get *all* the wax out of combs, especially if they are old. If any one has 100 lbs. of wax to render, the press will almost pay for itself on old combs; and for cappings and scraps of new comb it has the advantage of speed, as two hands can make from 200 to 300 lbs. in one day, while an extractor is crowded to make over 20 lbs. a day, with much fussing and annoyance to the women-folks. The press also has this advantage, that the wax is left in solid cakes, while the extracted wax must be caked after making, incurring another fussing job.

Last season I made my wax and some for my neighbors, on an improved press, which gave good satisfaction. I send you drawings, so you can give it to your readers if you like.

The manner of using it is an improvement on the method described in the A B C of Bee Culture. There all the combs are to be melted in the press-tank, which makes it very slow. My method is to melt the combs in another vessel, in my case a large kettle, out of doors, and then dip the melted combs and all that rises to the top of the kettle into the forms, and press at once. This makes the work continuous; for by the time one pressful is run out, another is melted in the kettle. Three or four pailfuls of water are kept in the kettle all the time; and when this once gets hot, wax soon melts in it. So much for the manner of working.



HATCH'S IMPROVEMENT ON CARY'S WAX-PRESS.

The improvement in the press consists, 1, in dispensing with the tank entirely, a tray with a "lip" taking its place, being only two inches deep; 2, the rigid side-pieces to the frame are hinged at the bottom so as to turn to one side out of the way while filling the press—two eyes, united at the bottom, making the hinge. In using the press in cold windy weather, an outside shell of boards to slip down over the "cheese" before pressing would be a help, for cold winds might cause the wax to congeal before running into the molds. Eighteen inches square is a good size for the tray, and 15 x 15 for the "forms." The form is made of ⅞-inch stuff, 4 inches wide. The racks are made of three-cornered top-bars. The cloths are of burlaps, such as bran-sacks are made of. Wire nails, 1½ inches long, are used to pin the cloth together when building the "cheese." The screw is a common iron bench-screw, such as can be had at any hardware store. Material to make a press should not cost over $1.75, or $2.00 at the outside. I am sure, if you would make one and use it on old combs, especially on scraps having much propolis among it, you would never want to "fuss" with a wax-extractor again.

Ithaca, Wis., Jan. 28, 1889. C. A. HATCH.

I heartily agree with you, friend H. Your machine seems to be a model arrangement, especially the device for letting the screw fall over out of the way.

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

In order to read understandingly the reports given below, it will be necessary to observe the following points: First, the State is given; then next in their order are the names of the reporters, with their respective postoffices. To indicate locality, the usual abbrevations are used—N., S., E., and W., for north, south, east, and west; N. E. for north-east, etc. The letter C indicates the word "central;" E. C., east central, etc. In the following list, the first figure represents the month, and the second figure the date at which the report was rendered. The small letters, a, b, c, d, etc., indicate the answers to the questions propounded in questions a, b, c, etc., just below

WE herewith present our first installment of statistics for 1889. You will notice that our correspondents are located in such a way as to cover the entire United States. The average date at which the statements are rendered is May 10. The questions to which they reply are as follows:

a. What per cent of your bees have wintered?

b. What per cent of the bees in your locality do you estimate have wintered?

c. What size of brood-frame is used most largely in your locality?

d. What frame do you prefer?

e. What per cent of an average crop of honey has been secured in your locality up to date, as nearly as you can estimate?

f. What are the prospects for a honey crop this year?

ALABAMA.

W. P. W. Duke, Nettleborough. S. W. 5-15.
a. 100; b. 85; c. L.; e. 80, taking 100 as standard for full crop. I did not lose a single colony in wintering.

J. M. Jenkins, Wetumpka. C. 5-20.
a. 95; b. 90; c. mostly none at all; d. Simp.; e. 100; f. good, good.

ARIZONA.

Jno. L. Gregg, Tempe. C. 5-8.
a. 98; b. 96; c. 1½ x 11¾ Gregg frame; d. I prefer this for the extractor; e. about 10; f. fine.

ARKANSAS.

W. H. Laws, Lavaca. W. C. 5-8.
a. 95; b. 95; c. Langstroth; d. L.; f. good. My 100 colonies contain less bees than ever before at this season of the year. Swarming has just begun; expect few swarms this season.

CALIFORNIA.

W. W. Bliss, Duarte. S. E. 5-11.
a. 95; b. 80; c. no standard size. Any and all sizes used, but we are rapidly changing to the L. and ⅞ L. frame; d. ⅞ L.; e. 20; f. very good.

Wm. Muth-Rasmussen, Independence. E. 5-10.
a. Probably 100. Not yet examined; b. probably 95; c. crosswise L.; wide frames of same size, hold six sections; d. above; e. none; f. good.

R. Wilkin, San Buenaventura. S. W. 5-15.
a. 80; b. 85; c. L. universally, almost; d. L. The form might be varied materially without loss only for the sake of uniformity in the community; e. 2; f. very good.

CONNECTICUT.

Lewis Sperry, Hartford. 5-6.
a. 100; b. have not heard of any losses; c. L.; d. L.; f. never knew it better. Bees are booming.

Daniel H. Johnson, Danielsonville. E. 5-6.
a. 83½; b. 80 to 90; c. Langstroth; d. I use the L., but I sometimes think a shorter one would be better; f. Apparently good at this date.

R. M. Wilbur, New Milford. 5-15.
a. 80; b. 85 to 90; c, d. L.; f. very good indeed.

COLORADO.

Mark W. Moe, Denver. C. 5-9.
a. 100; b. probably 95 or more; c, d. L.; f. good.

FLORIDA.

J. L. Clark, Appalachicola. W. 5-13.
a. About 85; b. say 90; c. 18x8; d. as above; e. full crop, extra quality.

John Y. Detwiler, New Smyrna. E. C. 5-6.
a. About 95; b. same; c. 9⅛x17⅝, L., mostly; d. 11¼x11¼ (Gallup every time; e. too early by 10 days to extract; f. present prospects fair for early or dark honey.

GEORGIA.

J. P. H. Brown, Augusta. E. C. 5-17.
a. 90; b. 80; c. L. 17⅝x9⅛; d. L.; e. a full average; f. fine.

Walter McWilliams, Griffin. W. C. 6-7.
a. 100; b. 80 to 90; c. L. (8 x 16 inches) and Simplicity; d. Simplicity for ever; e. 40, with splendid weather to secure the 60 per cent.

R. H. Campbell, Madison. C. 5-7.
a. 95; b. 90; c. L.; e. 100; f. good.

T. E. Hanbury, Atlanta. N. 5-7.
a. 100; b. 100; c, d. L.; e. 100.

IOWA.

Z. T. Hawk, Audubon. W. C. 5-6.
a. All; b. 95; c. L.; one apiary, Heddon; d. a frame 16⅜ in. long, 7 in. deep, outside dimensions, with the VanDeusen metal corners. It is a standing frame, fixed, and reversible; inside area, 100.4 sq. inches; f. excellent.

Eugene Secor, Forest City. N. 5-1.
a. 95; b. 90 to 95; c, d. L.; e. none; f. I see no reason for discouragement.

Oliver Foster, Mt. Vernon. E. 5-6.
a. All; b. 95; c, d. Simplicity L.; e. no honey yet; f. good.

J. W. Bittenbender, Knoxville. S. E. 5-10.
a. 99; b. 85; c. L.; d. Heddon's; e. too early for this question; f. good.

J. M. Shuck, Des Moines. C. 5-7.
a. All; b. 99 at least; c. L.; d. my own, same size as L.; f. not good. Season well forward, but we need rain very much.

A. Christie, Smithland. W. 5-7.
a. 95; b. have recently returned from Colorado, and am not informed; c, d. L.; f. too early to say, but bees are in excellent condition.

INDIANA.

I. R. Good, Nappanee. N. W. 5-5.
a. 97; b. 80; c. 11⅝x9½, and L.; d. new Heddon and L.; f. not very good. White clover is scarce, and we are having a drouth which is damaging what there is.

Mrs. A. F. Proper, Portland. E. C. 5-7.
a. All; b. 75; c. 11⅝x10¼—adjustable and L.; d. adjustable; f. fair.

T. H. Kloer, Terre Haute. W. C. 5-8.
a. 95; b. from 95 to 100; c. L.; d. L. at present; e. none; f. We are now in the midst of a terrible spring drouth. Not a good rain all March and April. Winter has been rather dry. Nothing can grow. The white clover, which is more promising than I have seen it since 1883, is beginning to dry up. Unless we have rain very soon, there will be no white honey.

Joe. A. Burton, Mitchell. S. C. 5-9.
a. All; b. 95; c, d. L.; f. good if it would rain.

ILLINOIS.

Mrs. L. Harrison, Peoria. W. C. 5-9.
a. 97; b. 90; c, d. L.; e. no surplus; f. fair, but rain is greatly needed.

F. W. Goodrich, Bloomington. C. 5-10.
a. All; b. 90; c. 10x12½; d. crosswise L.; f. very poor.

C. Dadant, Hamilton. N. W. 5-9.
a. No loss; b. all; c. Quinby and Langstroth; d. Quinby; e. too early for answer; f. good for clover, if it doesn't get too dry.

C. C. Miller, Marengo. N. 5-4.
a. 99, but an unusual number of queenless colonies, so perhaps only 90 are left; b. perhaps 90; c, d. L.; f. good, if rain comes.

Frank Howard, Fairfield. S. 5-8.
a. 100, b. 99; c. L., and a frame 12⅜ x9¼; d. the latter; f. good.

KANSAS.

J. C. Stanley, Wichita. S. C. 5-5.
a. All; b. 98; c, d. L.; f. good.

J. B. Kline, Topeka. E. C. 5-6.
a. All; b. nearly all; c, Gallup, L.; d. Gallup; e. not any—too early; f. good so far.

KENTUCKY.

D. F. Savage, Hopkinsville. S. W. 5-8.
a. All; b. 90; c, d. L.; f. prospects very good.

Jno. S. Reese, Winchester. C. 5-5.
a. All; b. 25; c, d. L.; e. none; f. good—better than usual.

J. P. Moore, Morgan. N. 5-5.
a. All; b. 95; c, d. L.; f. fair. White clover is thicker than it has been for four years.

LOUISIANA.

J. W. K. Shaw, Loreauville. S. C. 5-9.
a. Starvation has reduced the colonies to ½; b. 25; c. L. frame, Root measure, and the American; d. the L. frame, always; e. a few colonies extracted to give room, in April and May 1st, gave 65 lbs. each; f. outlook is good.

MAINE.

S. H. Hutchinson, Mechanic Falls. 5-8.
a, b. About 80; c, d. L.; f. good.

J. Reynolds, Clinton. S. E. 5-6.
a. 97; b. 65; c. L.; d. don't know; use L.; f. good.

MASSACHUSETTS.

J. E. Pond, No. Attleboro. S. E. 5-18.
a. All; b. 75, I judge from advices; c, d. L.; e. too early to decide; f. prospects are good.

E. W. Lund, Baldwinsville. N. C. 5-7.
a. 90; b. 90; c. can not tell all sizes used; d. 10x13; f. very good.

Wm. W. Cary, Colerain. N. W. 5-6.
a. 98; b. 95; c. about ½ L.; rest, Cary-L., 10x13 inside; d. Cary-L. winter best, and breed up earliest; have about ½ of each for years in my apiary; e. season not yet opened; f. good.

A. A. Sanborn, Westfield. C. 5-6.
a. 87½; b. 90 to 95; c, d. L.; f. good.

MARYLAND.

Simon P. Roddy, Mechanicstown. 5-10.
a. 99; b. 95; c. 9⅜x15⅜; d. the above size; f. good.

MICHIGAN.

A. J. Cook, Lansing. C. 5-5.
a. 95; b. 85; c. Gallup and L.; d. L.; e. none to speak of; f. good, I think.

H. D. Cutting, Clinton. S. E. 5-6.
a. 99; b. 80; c. 9⅛x13⅛ inside; d. 10x14, outside, but I am using the L.

James Heddon, Dowagiac. S. W. 5-6.
a. 85; b. 85; c. L., 8⅛x17⅝, sold by Heddon; d. the close-fitting Heddon frame, 5x18; e. no surplus yet, and very small gathering for brood-chambers; too cold; f. only fair.

George E. Hilton, Fremont. W. 5-6.
a. 97; b. 95; c, d. L.; f. if we get the latter rains, good; too dry at present.

MINNESOTA.

N. P. Aspinwall, Harrison. C. 5-7.
a, b. All; c. American; d. American; no experience with any other; f. extra good.

D. P. Lister, Lac Qui Parle. W. C. 5-7.
a. 95; b. 75; c, d. L.; f. so far, conditions of bees considered as well, I think it good.

W. Urie, Minneapolis. E. C. 5-7.
a. 98; b. 95; c. 17; length of top-bar, inside measure, 15½; deep, out, 10; inside, 9⅜. It is called Langstroth, but it is one inch deeper than the regular size of Langstroth; d. I prefer this size; f. I never saw it better than now since I have been in the State; hive full of bees and working rapidly on fruit-bloom.

J. H. Johnson, Fairmont. 5-16.
a. All; b. no complaints; wintered well; c, d. L.; f. fair.

A. F. Bright, Mazeppa. E. 5-7.
a. 96; b. about 90; c, d. L.; f. not very good; too dry.

MISSISSIPPI.

Oscar F. Bledsoe, Grenada. N. 5-12.
a. About 95; b. very near the same; c, d. short L.; e. fully 100 or over; more clover honey than I ever knew to date; f. excellent. I am becoming more confident each year in bee culture, here in the South, as a paying pursuit.

MISSOURI.

S. E. Miller, Bluffton. E. C. 5-11.
a. 90; carelessness was the cause of loss; b. 90; c. L., or about the equivalent; d. do.; f. very good; have had a very dry spell, but are just now having a splendid rain.

Jno. Nebel & Son, High Hill. E. C. 5-6.
a. 98; b. 98; c, d. L.; f. good for white clover if it rains soon. At present it is very dry for the growth of vegetation.

Chas. L. Gough, Rock Spring. E. C. 5-11.
a. 100; b. about 60; c. none only what I have introduced. I use a frame 11½ wide, 16 deep, and one 11½x11½; have one L. hive; like it well; d. I prefer 11½x11½ for storying up for extracted honey; e. extracted part of 4 stands May 10; got about 50 lbs.; f. good at present. Bees are booming on white clover; almost too dry at present writing; have one swarm; but no queen came out, and they went back.

James Parshall, Skidmore. N. W. 5-7.
a. 95; b. 95; c, d. L.; f. prospects are very promising.

NEBRASKA.

F. Kingsley, Hebron. S. C. 5-8.
a, b. 80; c, d. L. brood-frame; f. never better.

A. E. Maley, Auburn. 5-12.
a. 100; b 90; c, d. L.; f. good.

J. W. Porter, Ponca. N. E. 5-6.
a. 98; b. 80; c. L., 17¼x8½; d. L.; f. the prospects are favorable, but there is not as great difference in seasons in respect to a honey crop south of us as is complained of in more eastern States.

NEVADA.

E. A. Moore, Reno. W. C. 5-10.
a. About 90; b. about 75; c. I use L. frame; all others, box hives; hard to tell size; f. good.

NEW HAMPSHIRE.

C. E. Watts, Rumney. C. 5-11.
a. About 84; b. nearly all; c. I have some L. frames and some 10x14, and there are some others used; d. all things considered, the L.; f. the prospect for a honey crop is good.

NEW JERSEY.

J. D. Coles, Woodstown. S. W. 5-10.
a, b. 75; c. old-fashioned box, 10x10x20; d. L.; f. good.

Watson Allen, Bernardsville. N. C. 5-8.
a. 95½; b. 85; c, d. 10x15; f. good for white clover.

NEW YORK.

P. H. Elwood, Starkville. C. 5-10.
a. 99; b. 95; c. 10½x16 inside; d. new Quinby, Hetherington size, 10½x16; f. full average.

H. P. Langdon, East Constable. N. E. 5-7.
a. 90; b. 75; c. American, and but few of those; d. Root's Simplicity; f. first-class.

Frank Boomhower, Gallupville. E. C. 5-6.
a. 98; b. 90; c. about 10x15; d. L.; f. more than good.

G. M. Doolittle, Borodino. C. 5-6.
a. 98; b. 95; c, d. Gallup; f. fair.

NORTH CAROLINA.

Abbott L. Swinson, Goldsboro. E. 5-8.
a. 95; b. 90; c. L., when any is used; d. L.; e. ¼; f. very good.

OHIO.

Dr. G. L. Tinker, New Philadelphia. N. E. 5-6.
a. 89; b. 85; c. the Nonpareil, 7x17; d. 7x17; f. the prospect could not be better at this time.

Chas. F. Muth, Cincinnati. S. W. 5-7.
a. All; b. 75 or more; c, d. L.; e. none yet so far; f. most excellent.

Dr. H. Besse, Delaware. C. 5-9.
a. 60; b. about 60; c, d. L.; f. first rate.

A. B. Mason, Auburndale. N. W. 5-4.
a. 100; b. 95; c, d. L.; f. good.

OREGON.

George Ebell, Baker City. E. 5-9.
a. 20; b. 15; c, d. L.; f. poor.

J. D. Rusk, Milwaukee. 5-11.
a. 90; b. 95; c, d. L.; f. good.

PENNSYLVANIA.

Thos. C. Davis, Idlewood. C. 5-8.
a. 90; b. about 90; c, d. L.; e. honey is coming in rapidly now; f. the prospects are excellent.

C. W. King, Emlenton. N. W. 5-7.
a. 99; b. 90; c. L.; d. 10½x14; f. good.

S. W. Morrison, Oxford. S. E. 5-6.
a. 100; b. 75; c, d. L.; e. 100, from cherry and apple blossom; f. very good.

Geo. A. Wright, Glenwood. N. E. 5-7.
a. 60; b. 90; c. L; d. I'm stuck; f. fair. My out-apiary, worked for extracted honey, and wintered in Simplicity hives, is gone by the board; home apiary, worked for comb honey, and wintered in chaff hives, is in fine condition.

RHODE ISLAND.

Samuel Cushman, Pawtucket. 5-1.
a. 90; b. 60 to 70; c. L.; d. L. frame, Hoffman style; f. bees are doing well, and prospects for clover are good.

A. C. Miller, Providence. E. 5-6.
a. 75; b. 95; c. L.; d. L., after using 5 other kinds; f. unusually good.

SOUTH CAROLINA.

W. J. Ellison, Stateburg. C. 5-19.
a. 100; b. 95; c, d. L.; e. just begun to extract.

J. D. Fooshe, Coronaca. 5-7.
a, b. 100; c, d. L.; e. too early to estimate; cold east winds have retarded crops. The weather has improved, and honey is coming in rapidly now.

H. T. Cook, Greenville. 5-6.
a. 100; b. from 0 to 100; c. L.; d. have tried no other; e. too early to say.

TENNESSEE.

W. H. Greer, Paris. N. W. 5-7.
a, b. 90; c, d. L.; f. very good.

C. C. Vaughn, Columbia. C. 5-9.
a. 95; b. 90; c, d. L ; e. 50.

TEXAS.

L. Stachelhausen, Selma. S. C. 5-9.
a. 98; b. 95; c, d. L.; e. no honey as yet; f. good.

W. A. J. Beauchamp, Orange. S. E. 5-10.
a. About 95; b. about 80; c. 11½x11½; d. about 8¼x12⅜. This size we think most convenient for all purposes—here. e. 95 to 100 to date.

J. P. Caldwell, San Marcos. S. W. 5-9.
a, b. 100; c. L., 17⅛x8⅝; d. I prefer the L.; e. we never have super honey until June.

J. E. Lay, Hallettsville. S. W. 5-9.
a, b. All; c, d. L.; e. none yet; f. fair.

VERMONT.

A. E. Manum, Bristol. W. 5-7.
a. 90; b. 92; c. the Bristol frame, 12 inches long by 9½ deep, inside measure; d. the Bristol frame; f. good.

Howard J. Smith, Richford. N. C. 5-9.
a, b. About 75; c, d. L.; f. good.

VIRGINIA.

J. W. Porter, Charlottesville. C. 5-9.
a. 70; the loss was from neglect; b. 70; same cause; c, d. L.; e. only brood supply; f. good.

H. W. Bass, Front Royal. N. 5-10.
a. 85; b. 75; c. L.; d. L. in depth, but shorter; f. very promising.

James E. Duvall, Bellfair Mills. E. 5-13.
a. 90; b. about the same; c, d. L.; e. no surplus yet.

J. C. Frisbee, Suffolk. S. E. 5-6.
a. 90; b. 80; c. 15⅝x8⅝; d. L., because it is standard; e. none; backward season; bees are now working finely; f. prospects are just opening favorably.

WEST VIRGINIA.

J. A. Buchanan, Holliday's Cove. N. 5-6.
a. 100; b. 25; cause of loss, honey-dew stores; c, d. L., f. very fair.

Jno. C. Capehart, St. Albans. S. W. 5-10.
a. 90; b. 80; c, d. L.; f. May 10, drones being killed; nevertheless, prospects fair.

M. A. Kelley, Milton. S. W. 5-1.
a. 85; b. about 90; c. Adair, American, and Quinby; f. fair to good.

Will Thatcher, Martinsburg. W. C. 5-7.
a, b. 100; c, d. L.; f. good.

WASHINGTON.

J. H. Goe, Mossy Rock. 5-12.
a, b. About 90; c. there are so many different sizes used I can't answer definitely; d. L.; f. splendid.

W. W. Maltby, Port Angeles. 5-13.
a. 86; b. 95; c. Adair; d. Adair or Gallup; f. good.

WISCONSIN.

S. I. Freeborn, Ithaca. S. W. 5-7.
a. 90; b. 95; c. L.; d. have 100 L., 200 Gallup hives; f. fair, if it would rain.

E. E. Tongue, Hillsboro. 5-14.
a. The loss is about one colony out of 80; b. 79 to every 80; c, d. L.; f. unless we get rain, it will be poor.

E. France, Platteville. S. W. 5-9.
a. 95; b. about 90; c. enlarged Metcalf frame, size 12 inches wide, 19 high; d. enlarged Metcalf; f. fair, with favorable weather. Bees are very strong for this time of year.

Joshua Bull, Seymour. E. 5-7.
a. 75; b. about 75; c. L.; d. I am not fully prepared to decide. I am using the Jones, Langstroth, and the new Heddon; I get good results with each of them; f. good.

Frank McNay, Mauston. C. 5-6.
a, b. 90; c, d. L.; f. fair.

George Grimm, Jefferson. S. E. 5-6.
a. 90; b. 80; c, d. L.; f. very good.

WYOMING TERRITORY.

G. G. Mead, Ferris. S. 5-17.
a. 75; b. no other bee-keepers here; c, d. L.; f, good.

A summarized averaged statement for the entire United States, we find stands as follows:

a. Of the bees owned by the special reporters, 91½ per cent have wintered.

b. Of the bees in the localities of the reporters, 83 3/10 per cent have wintered.

c. 75 per cent of the localities reported are using the L. frame exclusively, and the others use odd sizes, no one frame in particular.

d. The frame used by the reporters themselves is about the same as stated in *c*.

e. Where honey has been coming in, a full average has been secured up to date.

f. The prospects throughout the United States are universally good—never better.

Now let us go back and see what the statistics mean. To question *a* we find the average of 91 per cent is considerably better than the average for about the same date for last year, the ratio standing 91 to 84; but remember this rather has reference to those who reported on *their own* bees. The percentage of loss for the *localities* (bee-keepers, good, bad, and indifferent), is also much less this year—the ratio standing 17 to 33 in favor of 1889. Observe that the reporters (who are in most instances the best and most successful bee-keepers we could select for the localities) have had much better success than the mediocre bee-keepers—those who can not afford to own a good text-book or take a good bee-journal. The first-mentioned class lost only 9 per cent; the last mentioned lost 17 per cent. This point was clearly brought out in the statistics for last year. The answers to question c prove conclusively that the Langstroth frame is the universal standard throughout the length and breadth of our country. There are three times as many L. frames, according to the reports, as *all the rest of the frames put together*, odd sizes included. If we eliminate the frames used by only one or at most two or three bee-keepers in certain localities, there would be probably ten times as many of the L. pattern as of any other. We were a little surprised that not more of the Gallup or the American frames are in use. We were surprised, also, to see that so few square frames are in use. The universal use of the L. frame, north as well as south, proves, if it proves any thing, that, all things considered, that is the best frame for the masses. It proves, also, that bees winter just as well in a shallow frame (like the L., for instance) as in a deep or square frame. If any one can see any *better* results in wintering, from those who report using the square or nearly square frame, we must say we have been either awfully careless in looking over the reports, or that our eyesight is pretty poor. If the square frame will winter bees better, the reports ought to show it; but they don't.

Perhaps we should say, that although the reports do not show it, yet many letters we are receiving say that the yield from fruit-bloom has been unusually large.

ON THE BANK OF THE MISSOURI.

SOME OF THE THINGS I MISSED DURING MY TRAVELS.

WE can hardly express in words the pleasure we have taken in reading your travels in California and the West. Our father has also been very much interested in said part of GLEANINGS. He does not read the part pertaining to bees, as he is not very much interested in them. We consider your very plain and interesting description of your travels worth many times the subscription price of GLEANINGS; and the illustrations are simply grand. Why, to read your writings and look at the illustrations makes one feel almost as if he had been with you and seen it all. We have also read with some amusement the complaints brought against you for passing by some of the bee keepers; but we did not know that we had any cause for complaint until reading your concluding remarks, where you refer to the Missouri River. We only then realized that you had passed within sight of our home; that is, we can see the cars in winter, as the Missouri Pacific R. R. runs within two and a half miles of this place, and we know that, if you had been looking north across the river, just after passing a small place called Morrison, you would have admired the beautiful bluffs within three-fourths of a mile east of here, even if you had seen scenery more grand during your travels. Your remarks about the Missouri River are very interesting to one acquainted with that grand old stream. Sure enough, it is like a meadow brook in the way of cutting away its banks. It is not an uncommon occurrence for it to cut in an eighty-acre farm, worth four or five thousand dollars, in a very short length of time. You are right, too, about the land being very fertile; and the islands you refer to are, many of them, or portions of them, cultivated, and produce fine crops while they also furnish splendid pasturage for cattle. Of course, they are overflowed some years, and those farming them lose their labor; but on an average it pays well to cultivate them. On these islands near here is where our bees get most of their early pollen, and this year we think they got some honey from the willows.

Now, friend Root, while we could hardly expect you to spend your time in calling on such little bee-keepers like ourselves (not big guns), we should have enjoyed a visit from you very much; and had we known when you passed here we should have been pleased to meet you at some station where your train stopped, even if only long enough to take you by the hand and exchange a few words. Now, when you start on your next trip, let your friends know beforehand what route you are going to take, so that they may be prepared to pick you up when you do not know just where to look for them. Bluffton is an inconvenient place to get to; but please remember, if you ever get as near here again as you have been, and think you can spare the time to stop off, we shall try hard to make things pleasant for you here, and assure you a hearty welcome in our father's old log house on the bank of the Missouri.

Bluffton, Mo., May 16, 1889. MILLER BROTHERS.

Dear friends, it is not the big guns only I love to visit. It is true, I like to see them, for, as a matter of course, they have many short cuts and improvements which you

could not expect to find among the small bee-keepers. But the most real enjoyment I have found in traveling has been, as a rule, in meeting the friends on small apiaries and in humble homes. I should enjoy extremely, making you a visit. I remember pretty nearly the locality you describe; and what you told me makes me still more enthusiastic in regard to this matter of restraining our great rivers. We do not want "prohibition" in *this* matter, but we do want to know how to "regulate and restrain." I feel satisfied, from what I could see from the car window, that valuable farms—yes, thousands upon thousands of acres—were going to waste because of our helplessness in this matter. Why, the very essence of fertility of our best farming lands is being continually carried away and spread over these immense flats, pushed one way and then another by the water, so it is of no value to any one. I should not be surprised if some of that bottom land were so rich in fertility that not even stable manure or chemical fertilizers would make it do any better.

SMALL, BLACK, SHINY ROBBER-BEES.

ARE THEY HONEY-BEES, OR A WILD BEE.

MR. E. H. CALLINGS, of the Hamilton Co., Indiana, Bee-keepers' Association, writes me that, at their recent meeting, several members reported serious robbing from small, black, shiny, almost hairless bees. He says they come in swarms to the victims of their greed, and seem to meet no resistance. They are doing very serious damage. Our society asks that you give us your opinion of these depredators in GLEANINGS, that it may be read before our society at its next meeting. Several have tried to hunt these marauders to their holes, in hopes to exterminate them. "We know that you are very busy, but society always presumes one like you can always find a *leetle* more time to do one more kindness."

These are not social but solitary bees, I presume of the genus *Andrena*. I have often heard like complaints, but never before has any such report as this come to my notice. Usually it is said that they are too few to do any serious damage. Now it is asserted that they come in swarms. I think it is easy to explain this. The past warm winter has been very favorable to insect-life, so that such insects or bees, instead of dying off by the thousands, as is usually the case, nearly all live through. I have noticed that wild bees are unusually abundant on fruit-bloom this spring.

These bees are solitary, and make their cells either in hollow stems or else in earthen tunnels. Thus to hunt these foragers to their holes would be like seeking needles in a straw-stack. Like our common honey-bees, these wild bees rob—at least so I think—only when there is no nectar in the flowers. Thus, I presume in Indiana they are stealing just after the prosperous season of the fruit-bloom. Bees are very much like men—they find it hard to brook a famine after prosperity has smiled upon them for a season, and so they often take to larceny. It is very difficult to suggest a cure for this evil. The bees are small, and can not be stopped out except as we close the bees in. Again, for some strange reason the bees seem to bear their enemies no ill will, but almost welcome these bee-tramps; so we can hardly shut them out by nearly closing the entrance. As these *Andrenæ* pilfer only when the harvest is past, in case they are too serious it may pay to close the hives; and if the weather is not too warm, let the hives remain on their stands, else carry them to the cellar. There is a silver lining to this unwelcome cloud; and that is, it soon blows over. So far as I know, these raids are soon past. Either the robbers are smitten with compunctions of conscience, or else, and more likely, they find fresh nectar in the flowers, where to rob is to do a kindness.

I am sorry Mr. Callings did not send me some of the bees, then I could know just what they were.

Agricultural College, Mich. A. J. COOK.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SUGAR VS. NATURAL STORES; COMPARATIVE EXPERIMENTS ON, AND THE RELATIVE COST OF EACH.

FRIEND ROOT:—I send you the result of an experiment which I tried, to ascertain the comparative value of honey and sugar syrup as winter feed for bees.

I gave two hives empty frames, and weighed them; then I fed each 27 lbs. of syrup, made in the proportion of 2 of best granulated sugar to one of water. As soon as they had the syrup stored in the combs they were again weighed. On the same day, Oct. 22, two other hives having all natural stores, and, to all appearances, of the same strength as the first two, were weighed. They were all weighed Nov. 16, and again April 27th, when fruit-bloom had just opened, and this is the record:

We will call the sugar-fed hives A and B, and the hives having natural stores C and D. Oct. 18, A and B having empty combs, each weighed 40 lbs.; C and D 58 and 62½ lbs. respectively. Oct. 22, after A and B had their feed stored in the combs, they weighed 62 and 61 lbs. respectively; the former having lost 6 and the latter 5 lbs. in storing 27. Nov. 16, A weighed 56 lbs. and B 56½, while C weighed 55 and D 58½ lbs. Thus, between Oct. 18 and Nov. 16, A lost 11 lbs., B 10½, C 3, and D 4. April 27, A weighed 42¾ lbs., B 40, C 37, and D 42. Thus, for the whole time, A lost 24¾ lbs., B 27, C 21, and D 20½.

Although my experiment was upon too small a scale to furnish a very reliable rule, so far as it goes it shows that 25 lbs. of syrup, made in the proportion of 2 of sugar to one of water, is equal to 20 of honey. With sugar at 9 cts., the present price, and honey at 7½, the value of the 25 lbs. of syrup would be just equal to the 20 lbs. of honey; and unless bees winter better on syrup than they do on honey, the labor of extracting honey and making and feeding the syrup would be just so much time and labor wasted. J. MCNEIL.

Hudson, N. Y., May 6, 1889.

Friend M., I don't think your experiment is as conclusive as you seem to put it. A colony that has a certain number of pounds of stores sealed up in their combs, all ready for winter, is in better condition—that is,

they will survive longer on this quantity of stores, than if this sealed honey were unsealed stores; at least, that is my opinion after having done considerable taking away the honey and giving sugar stores instead. Now, I do not mean to say that natural stores will go further than sugar, but, on the contrary, if the colony has stores of sugar syrup sealed up in good shape for winter, it would answer just as well or even *better* than the natural stores. The point is, that it costs a good deal to get any kind of stores, well ripened and sealed, up in the combs. In working some little time to get a colony of vicious hybrids to accept a different queen, they uncapped their honey and gorged themselves with it, and then put it back in their combs so many times that they nearly used up in a couple of weeks what would otherwise have lasted them all winter.

IS IT TRUE?

I inclose a clipping from the *New York Evening Post*, which I thought might be of interest to you.

YOUNG G. LEE.

Charlotte Harbor, Fla., May 13, 1889.

CURIOUS DISCOVERY OF OLD HONEY.

A remarkable discovery has just been made at the Cathays Yard of the Taff Vale Railway Company. A large elm-tree, grown in Gloucestershire, was being cut up into timber, when, right in the very heart, a cavity measuring 8 feet by 7½ inches in diameter was discovered almost completely filled with a comb of the honey-bee, together with a squirrel's skull. No means of access to the hollow was discoverable, neither was decay anywhere apparent, and around the cavity itself no less than fifty "rings," each ring denoting a year's growth, were counted, the outer bark, too, being without a flaw. The hollow was of uniform size throughout, and presented the appearance of having been bored with an auger, and, great though its dimensions were, it was practically filled with the comb, proving that the bees must have been in possession for several years. Empty combs of the queen-bee also showed that they had swarmed. How the bees got there can only be guessed, but it is surmised that a squirrel once occupied a decayed hole in the tree, cleared away the decay, occupied the cavity as its home, and there died. Then the bees entered into possession and filled the hole with comb, when by some means the entrance, which must have been small, became stopped, the large quantity of grub and fly being taken as demonstrative that the nest was not voluntarily deserted. Then for fifty years the growth of the timber went on. The entrance being absolutely obliterated and the hole being hermetically sealed, the comb was preserved from decay for half a century, to be found at last in the way described. The find is of the greatest interest to naturalists.—*Pall Mall Gazette.*

There is nothing particularly new in the above. I believe that wood-choppers meet with many such cases, although the trees may not be as large and as old as the one mentioned above. The fact that they found brood in these old combs does not by any means indicate that the bees were stopped in. Where they starve out in the spring, there is almost always more or less brood left in the combs.

CHUNK HONEY, AND HOW IT SELLS.

I don't like sections. They are too much trouble, and too uncertain about getting filled. I like frames best for comb honey. I cut out what will do to eat, then extract the rest, after which I set the frames over a nucleus and let the bees clean them up. I now fill in with foundation the place where I took out the honey. This is the way we have been managing ours the last three years when we had honey. We put in buckets and jars, and then pour in extracted honey. It sells before cool weather, and it goes off nicely this way. I think earthen jars the best yet to store honey in. We can weigh the jar, and then put the weight on a piece of paper, paste it on the jar, and then weigh honey and all together, and then wax a cloth and put it over the jar, tie it on with a string, and it will not leak or spill.

I like GLEANINGS well, Our Homes especially. Mr. and Mrs. Chaddock do look funny trying to get into a bee-hive at the side. Why not go in at the top? How are the carp getting along? I have not heard from them for some time. A. R. DIOK.

Hettick, Ia., Feb 8, 1889.

The plan you give is old and well known; but there are people, and I presume there are communities, that would pay more for honey in a stone crock than for that stored in any other way. In fact, it has been suggested that honey tastes better when taken from an earthen jar than when stored in glass, tin, or any thing else. I should think the jars would be cumbersome to lug around.

The carp are getting along nicely, except that we are still troubled with brook minnows getting in among them. I suppose that, if I had some competent person to take charge of the carp-pond, just as we have Ernest and Mr. Spafford to take charge of the bees, then I could succeed in banishing the minnows from our pond. The only harm they do is to destroy the largest part of the eggs that the carp lay, and fill the pond with their own worthless selves.

IS ALSIKE A CROSS OF WHITE DUTCH?

As there was considerable discussion in GLEANINGS some time back concerning alsike clover, as to whether it was a cross between the red and white, I have proved to my satisfaction that it is. About five years ago I sowed some seed I got of A. I. Root. The second year, it bloomed out as nice alsike as I ever saw; the third year was dry, and it did not do much. The next year there was not a head of alsike to be seen—it was every bit white Dutch, and I know there had never been a seed of white clover on the ground. Year before last I sent to W. M. Plant, St. Louis, and got a peck of alsike and sowed it. Last year it was as fine alsike as I ever saw. This spring it has all bloomed out white Dutch—not a stalk of alsike, and there never was a bunch of white clover on the ground before last spring. I sowed five acres more alsike, and it has bloomed out as fine a set of white Dutch as I ever saw. I think that should be evidence enough; at least, I am satisfied with it. There is but one chance left for it to prove to be genuine alsike, and that is this: I pastured each piece, that I had sown to alsike, all winter and till in the spring. What have you got to say about it, friend Root?

CHAS. L. GOUGH.

Rock Spring, Mo., May 14, 1889.

The able professors of the Michigan Agricultural College, if I am not mistaken, declare that alsike is not a hybrid. If the seed you sowed contained no white clover at all, the phenomenon you mention is a mystery,

especially if, as you say, white clover does not grow just as thick on other plats where no alsike was sown. Alsike does not hold its place on any soil as the white clover does —at least, so far as my information extends; but I can not understand how alsike should by any possibility change to white-clover. I do not think that pasturing would affect the result either way. Will Prof. Cook please give us his opinion on this matter?

WINTERING SUCCESSFULLY IN A REPOSITORY REEKING WITH MOISTURE.

I built a cave, on Doolittle's plan, during October, 1888, except the shingle roof. I had none, and the walls of the cave were clay only. I had three doors to said cave, but no ventilation whatever. I put 7 colonies in the same, Nov. 6; and although the moisture was very dense indeed, they wintered splendidly, being in the cave only 135 days. My first swarm issued on the 7th inst., a fine large one too. I think cellar wintering can be made a *success*, even in a clay bank. We have a fine prospect for a good honey harvest for this season. White clover is very abundant indeed. C. W. VANHOUTEN.

Smithfield, Ill., May 10, 1889.

S. F. NEWMAN ON CELLAR VERSUS CHAFF WINTERING.

Ernest did not quite understand me when we were talking about different methods of wintering. If I were going to winter inside I would adopt friend Boardman's method of "no bottoms," but I do not prefer inside wintering by any means. My bees never winter as well inside as they do in your chaff hive. I have 50 colonies that are strong enough to swarm to-day, and would swarm if I had not right along given them combs in the upper story. If I ever get time I will write you what I think about the "winter problem," and of my experience and success in reference to it.

Norwalk, O., May 15, 1889. S. F. NEWMAN.

Thanks, friend Newman. I accept the correction.

HOW MUCH HONEY WILL ONE ACRE OF CLOVER PRODUCE?

Somewhere in your writing you say one acre of clover will support ten colonies of bees. Will you please be kind enough to state, if one acre of clover is properly grown, and one colony of bees, properly managed, forages solely upon it, how much surplus honey ought this one acre of clover to produce? SUBSCRIBER.

I do not remember the statement you mention. If I made it, I think I must have said "probably," for it is a very hard matter to determine how many colonies an acre of clover will keep busily employed. If we could get out on a desert, and keep our clover field going by irrigation, then we might get at it. I have very little idea how much honey an acre of clover might produce; but I will hazard a guess, that it might give 10 pounds of honey a day for, say, 10 or 15 days; perhaps it might give half that quantity for 10 or 15 days more. If any of the friends who have considered this matter feel like criticising my answer, I should be glad.

UNCAPPING-CANS; ARE THEY NECESSARY?

I have bought about 50 stands of bees this spring. I am thinking of running about that number for extracted honey, three miles from home. I should like to have some of the friends tell, through GLEANINGS (if they can in time for this summer's crop of honey), how they manage the cappings—what they catch them in, and what is the best way to get the honey out of them, without buying an expensive uncapping-can like Dadant's? Or is that the cheapest, all things considered?

GRAPEVINES, CARE OF.

How will grapevines do in the apiary when the ground is set to white clover or blue grass, if the ground is kept dug up 12 to 18 inches around the vines, leaving the vines 6 feet apart each way? Or should the ground be mulched all over?

Bedford, Ia., May 6, 1889. J. S. WILLARD.

An uncapping-can is by no means necessary. It is only a convenience. If you do not wish to go to too much expense, you might set a cheap metal strainer on top of a dish-pan or large pail—just such an arrangement, in fact, as we sell for our cheap wax-extractor.—Grapevines will do very well as you suggest. They should have a distance apart of eight feet or more, instead of only six. The grass and weeds should be cut away from around the vines for as much as two feet. Mulching will answer every purpose.

FRIEND BOARDMAN EXPLAINS A LITTLE MORE UPON HIS METHOD OF CONTRACTION.

Friend Ernest:—Perhaps I ought to make a little explanation in regard to my method of contraction of the brood-chamber during the honey-flow.

Putting new swarms, whether natural or artificial, on empty frames, constitutes a very perfect and natural mode of contraction, and is usually all that I desire for a period of 20 to 25 days, where the queen is able to pretty nearly keep pace with the comb-building; but if the comb is built considerably faster than the queen can fill it with eggs, I sometimes cut it back to about the capacity of the queen to fill, and use the pieces, thus cut out, in sections instead of foundation. I cut it back only in new colonies, never in the old ones. My new colonies on the old stand give me all the surplus. I see in the account of your "Rambles" you leave this a little indefinite.

Thanks. My memory was not quite clear upon this point, and so I did not dare to enlarge upon it very much. Your explanation makes it more satisfactory.—Friend Boardman replies further:

TWO QUEENS IN ONE COLONY.

I have made this season what is to me quite an important discovery. Of what real practical value it may prove, I am yet not quite ready to decide. It is, using two queens in one colony, keeping both in active operation for an indefinite time. I have several such colonies that have been running under this dual administration since the beginning of the season (6 or 8 weeks). I do not know yet how long it will continue. I think, until swarming time. H. R. BOARDMAN.

East Townsend, O., May 7, 1889.

I suppose your discovery is, that bees will, a good many times, tolerate two queens at the same time. Under some circumstances, I know that this can be done; but at other times it does not seem to work at all. In fact, a good many of us have had expensive experience in trying to introduce queens where there was one already in the hive.

A queen pretty well along in years will almost always tolerate one of her daughters, and both lay right along together. Aside from this, we have not found it much of a success.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

FROM 88 TO 150, AND 4500 LBS. OF HONEY.

LAST spring I commenced with 88 colonies, about 10 queenless. I built them up but it took all the season. I increased to 150 colonies; ran 100 for extracted honey and 50 for comb honey. Extracted, I got 4200 lbs.; and from the 50, 300 lbs. I sold the extracted at an average of about 8½ cts. per lb.; the comb at about 11. Cash expenses, about $15.00. I went into winter with 150 colonies; came out with 149, none queenless. I wintered in single-walled hives, out of doors. I sold some; will commence with 138 this year. R. ROBINSON.

Laclede, Ill., May 6, 1889.

My son-in-law raised 170 lbs. of Japanese buckwheat from 2 lbs. bought of you last spring. We think it very good. E. B. GLAZIER.

Dryden, N. Y.

ABSCONDING WITHOUT CLUSTERING.

I can put in my evidence, that two *swarms* from this neighborhood went direct from their hive entrances last summer, for the woods. W. N. ROOT.

Assumption, Ill., May 6, 1889.

DRONES FROM DRONE-LAYING QUEENS.

1. Are drones from a drone-laying queen capable of fertilization? 2. If so, are they as good as drones from a fertile queen? ANDREWS & LOCKHART.

Pattens Mills, N. Y.

[1. Yes. 2. We think not.]

ONE BUSHEL FROM SEVEN OUNCES OF JAPANESE SEED.

I purchased seven ounces of Japanese buckwheat last season from you, and sowed it and got one bushel of fine buckwheat from it. I think that is pretty good. My bees seem to work on it almost constantly while in bloom, and it seems to be adapted to this country. J. S. TURNER.

Formoso, Kan., May 15, 1889.

BOARDMAN'S REPOSITORY.

I am quite interested in Boardman's repository. I have been pulling the bottom of my hives all off every year. I have become convinced that the common entrance is not large enough, for the bees become clogged, and damage the colony. He hasn't said how high from the ground the first row of hives is; nor how he ventilates the first row. My colonies are reduced down to about 110 this year.

Portville, N. Y. F. ROULO.

ORANGE-BLOSSOM HONEY.

Referring to page 323 of GLEANINGS, I find: "Orange-blossom honey, the first extracted honey of the season," which was taken March 21st. While visiting Prof. Webster, of Lake Helen, Fla., I assisted in extracting honey three days previous; viz., March 18, which was the second extraction. The sources were orange-blossom and andromeda. The crop in that locality is half harvested. In the mangrove district, honey is coming in slowly, barely sufficient for brood-rearing. Grape and bay will be open in a few days. Bees are in good condition.

New Smyrna, Fla. J. Y. DETWILER.

A SUGGESTION ON THE DOVETAILED HIVE.

You can get rid of the strips of tin you nail under the bottom of the super for the section-holders to rest on in Dovetailed hive, by making the end pieces of the honey-board wide enough for the holders to rest on. W. P. DAVIS.

Hyatt, N. C., May 10, 1889.

[Your plan is very good, so far as it goes; but what are you going to do when you tier up? You would have to use a honey-board between every super, and that would be too expensive. See?]

WHY ARE THE DRONES CARRIED OUT?

Two of my best Italian colonies are dragging out drones at a rapid rate, full grown and immature ones. I want those drones to mate with my youngest queens. They have much sealed honey from last season. They have done this since April 20. What is the matter? E. A. BOON.

Shellyville, Ill., May 6, 1889.

[I can not tell what it was, unless it was bad weather that discouraged them from swarming. Feeding regularly every day, I think, would have saved your drones.]

WILL BASSWOOD GROW IN SOUTH CAROLINA?

I should like to know if basswood would grow well in this climate. By referring to the map you can see where I am. G. D. MIME.

Parksville, S. C., May 9, 1889.

[Yes, sir, basswood will grow everywhere; in fact, I never heard of a place yet where such trees would not grow, if they were planted. It is true, of course, that they grow naturally in certain localities and do not in others. In our locality we find them on the tops of the highest hills and in the lowest valleys; and I believe that wherever we have sent little basswoods they have succeeded when once started.]

BLUEBIRDS AND MARTINS EATING BEES.

Will bluebirds eat bees? Yesterday I saw one catching something, and to all appearances it was bees. I shot him, and his gizzard was full; there was nothing but bees. Then I shot a bee-martin, and he was full of bees also. My bees are doing very well at present. I look for swarms soon.

Dundee, Mo., May 10, 1889. B. F. BAILEY.

[It has been urged that these birds simply catch drones and not workers. Did you examine the contents of their crops, to be sure on this point? My impression is, however, that it was workers that they caught, and that it was the honey in the honey-sacs that the birds coveted.]

W. S. DEVOL, FORMERLY OF THE OHIO EXPERIMENT STATION, NOW FIELD SUPERINTENDENT OF THE NEVADA AGRICULTURAL STATION.

I came to this station April 2, to take charge of the field work, agricultural and horticultural, and plenty to do in organizing the work. The field is new, and I have no doubt but much valuable work can be done here. The abundance of sage brush (*Artemesia tridentata*) makes excellent bee-pasture, and there is talk of conducting some experiments in bee culture. W. S. DEVOL.

Reno, Nevada, May 10, 1889.

[We are very sorry indeed to have you leave Ohio; but if we must spare you, I am glad to see you where you are. I should be pleased to hear of some of the results of the experiments in regard to sage brush for honey.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 127.—*How can prime swarming be prevented?*

I know of no perfect preventive.

MRS. L. HARRISON.

I don't know of any positive cure.

PAUL L. VIALLON.

I don't know. I wish I did. Young queens or none at all, with shade and plenty of room, are powerful aids. A. B. MASON.

By giving the workers the necessary room to deposit honey when flowers yield, and to the queen the necessary combs to deposit eggs. C. F. MUTH.

1. By extracting; 2. By keeping the colony weak by removing brood; 3 By giving plenty of room for storing and breeding. Not always sure.

A. J. COOK.

I do not know of any practical satisfactory way. Keeping a colony weakened down, or enlarging the hive excessively, will almost entirely prevent it.

R. WILKIN.

By taking out the queen with one or two brood-combs and attendant bees. Eight days after, break out all the queen-cells. A week or so after, the queen may be returned. P. H. ELWOOD.

Cage the queen and remove all the queen-cells once in 10 days. Don't keep the queen caged over 20 days, as the colony will begin to run down as soon as the brood is all hatched out. E. FRANCE.

By using large hives, supplied with surplus boxes as soon as the crop begins, and provided with combs, you can prevent all swarming, save when bees replace their queens during honey crops.

DADANT & SON.

Prime swarming can not be entirely prevented by any practical means that I know of; but it may be greatly lessened by a free use of the extractor, in connection with large roomy hives. During the last few seasons I was in Iowa, less than 3 per cent of my colonies cast swarms. O. O. POPPLETON.

Usually by giving the hive proper shade and ventilation, furnishing abundant room for the bees to store honey, and removing all queen-cells. Young queens are less inclined to swarm than old ones. Some cage the queen during the swarming season, and keep all queen-cells removed. L. C. ROOT.

By the interference of man to such an extent that it throws the colony out of its normal condition. This can be done in many ways; but according to my opinion, none of these ways are conducive to the highest success of either the bees or their keeper, where comb honey is the object sought. G. M. DOOLITTLE.

By giving such an abundance of empty combs that neither queen nor bees are ever crowded for room to store honey or lay eggs. Close extracting, even without so much room, will usually, though not always, prevent swarming. In general, swarming is discouraged by large hives and an abundance of ventilation and shade. JAMES A. GREEN.

It has cost me many a dollar to prosecute this inquiry, and several times I have thought I had the answer just within reach, but first I knew it was off in the dim distance, and I must confess it is there yet. Of course, you know the stereotyped "plenty of room, shade, ventilation," etc., but with any or all of these they may still swarm. C. C. MILLER.

The man who can answer this question, by giving a plan that is successful in all cases, had better not answer until he has got his patent, as there is a fortune in it. I don't know any such plan. The tendency to swarm can be checked by tiering up before the lower sections are quite ready to seal, and constantly providing ample room, yet not too much. To entirely prevent swarming is about as hard as to keep a family of grown-up boys together in this country. It can't always be done. GEO. GRIMM.

There are too many ways to positively prevent swarming, and second swarming, for that matter, to dilate upon them in this department; but to answer your question practically, I believe there has never been up to this time any practical method devised which it pays to put in operation to prevent bees from swarming in a large, working apiary. In such cases when we have all the increase we desire, it is best to use the well-known practical methods to discourage swarming, and at the same time be with the apiary during the swarming hours and save what swarms break over the general rule and swarm. In the large apiary, other work demands our presence any way. For smaller apiaries, two or three long articles might be written upon the subject of how to manage them and not stay and watch swarms at all. Last summer I ran 60 colonies in one apiary in that way, and lost but one or two swarms, I believe. JAMES HEDDON.

Now, here is a chance for some one to write a book upon this subject, and not answer all of the questions we could think of either. Several books have already been written, and a long array of articles to the bee-journals, away back through the past years, and yet the question seems to remain unanswered. I have found but one successful way to prevent swarming. This is my way: At a time when honey is coming in, shake or drum the bees out upon empty frames, on the old stand, and follow the new swarm with the surplus if any is on. When I have treated a whole apiary thus, I can trust them without any one to watch them. If you desire no increase, unite them with the parent colony after the season is over. Remove the old queens, and you have requeened your whole apiary with young queens, without hardly thinking of it. I suspect the complete success of this plan depends something on the kind of hive used. Now, then, if this answer does not give satisfaction, and some one has a more successful way, I should like to hear from him. H. R. BOARDMAN.

How can young people be prevented from trying to set up a new domicil? The thing is a little past the art of man. Some strains of bees are much less inclined to swarm than others. Some localities are very much less provocative of swarming than others. Running for extracted honey instead of for comb helps quite a bit. So if this man gets his stock from a business apiary where swarming seldom occurs, and keeps them in the right kind of a location, and runs for extracted honey, it is not likely that he will be troubled by swarming much.

As to location I will give my best judgment. Where the honey-flows are large, and mostly confined to a few short harvests, and the supplies of pollen rather scanty, there will be the least swarming of all. Where the honey-flows are small, and well spread over the whole season, and the supplies of pollen boundless, there will be the most swarming of all. This last pretty well describes my own location. I never had a colony get five pounds in one day that I know of; but I have had a third, if not a fourth, series of swarms led by the same queen in one season; and I have had thirty swarms in August. On the principle that any man can manage a bad wife except the poor wretch who has her, I suppose some of our respondents will tell us just how to do it. E. E. HASTY.

I am glad to see, friends, with what unanimity you all refuse to recognize the claims of certain patent-right men for non-swarming hives. Even the traditional garret, where the bees have a whole room for it, does not prove, through a series of years, to be non-swarming.

QUESTION 128.—*How can second swarming be prevented?*

Leave but one queen-cell to hatch. E. FRANCE.

By cutting out the queen cells at the proper time. MRS. L. HARRISON.

Remove all the queen-cells and introduce a laying queen. L. C. ROOT.

By breaking out all the queen cells but one or (better) two adjoining ones. C F. MUTH.

Destroy all queen-cells, leaving only one, unless there is a young queen just hatched. P. L. VIALLON.

I have had too little experience with either first or second swarms to know much about either. O. O. POPPLETON.

By putting the swarm in the place of the hive which has swarmed, and putting the old hive elsewhere. DADANT & SON.

Destroy all queen-cells but one, at the proper time after the first swarm has issued, say 6 to 10 days after. GEO. GRIMM.

By removing all queen-cells but one, or all and giving new queens; also, usually by depleting the hive, *a la* Heddon. I find this works well. A. J. COOK.

Usually by moving the old hive to a new location and placing the swarm on the old stand. By the Heddon plan. By cutting out all queen-cells but one. C. C. MILLER.

By removing all but one of the queen-cells is one way. Moving the hive from which a swarm has issued, to a new location, will generally prevent after-swarming. A. B. MASON.

By exhausting them of bees, which may be removed to the prime or first swarm, and employed in gathering surplus instead of acting as nurses in raising young bees that will never be able to pay for their board. H. R. BOARDMAN.

1. A fertile queen may be given them; 2. After destroying all queen-cells a virgin queen may be given them; 3. All but one cell may be removed to a new location after a week. There are exceptions to all rules; and these are reliable, about in the order stated. P. H. ELWOOD.

The best method I know any thing about, I devised and placed before the public, under the head of "Prevention of After-Swarms." It is printed in my book, and quoted and approved by Professor Cook, I believe, as well as being published in back numbers of bee-journals. JAMES HEDDON.

I have always had good success by letting a newly hatched queen run in at the entrance as soon as possible after the first swarm issues. This method has the advantage of allowing you to select your breeding stock, and is very little trouble. What is known as the Heddon plan works well. JAMES A. GREEN.

The following is the plan that I have laid out for myself the coming season: Set the prime swarm beside the parent hive; if too many bees incline to enter either of them, turn the entrance of the populous one away from the old position sufficient to prevent it. Six days after hiving, remove the parent hive to a new locality in the apiary, so that its surplus bees will return to the old stand, thus weakening it just at the time it would be getting the swarming fever again. R. WILKIN.

Upon the issuing of the prime swarm, take the brood-combs from the parent hive, placing them in a box, substituting other frames in their place, hiving the swarm by the returning plan. Now carry the combs of brood and the adhering bees to a hive on a new stand, wherever you wish a colony to stand, placing the frames in this hive. On the morrow, take a virgin queen; and after lifting one of the frames from the hive, wait a moment, when the bees that are on it will begin to fill themselves with honey, as they are all young bees. You are now to put the mouth of the cage having the virgin queen in it near some cells of unsealed honey, from which she will quickly begin to eat. In doing this, both bees and queen assume a natural condition, when the frame is lowered into the hive, and the hive closed. If you look the next day you will find all queen-cells destroyed, and swarming given up. G. M. DOOLITTLE.

I can tell how to do this, for I've done it—and contrived the plan all myself too. I listened at the hives at eventide, heard the young queens piping, rose early next morn, shook the bees into a swarming-basket, imprisoned them for two days in a pit, then returned them to the hive. It worked beautifully, and likewise ruined more than half the colonies I tried it on. Now, if I had waited an hour or two until the bees had swarmed naturally, and then had proceeded in the same manner for the rest of the process, it would have been all right. At least, that is my regular way of doing, and I have treated multitudes of them so with rarely any trouble. I concluded that breaking up their natural way infuriated them so that they killed their queen while waiting in the pit, and then (having got their hand in) they killed the other queen when returned to the hive. It was a time of great dearth of honey, and bees were abnormally cross. I mean to try the plan again under more favorable circumstances, and see if it can not be made to work. A lady, who has a considerable apiary next west of mine, handles all her second swarms by spreading them on a white sheet, and making them fly home after she has taken their queens all away. I'm sure I should miss half the queens (after-swarms frequently having several), and then they would go to the woods

instead of going home; but she seems to make a success of it. Shaking the bees in with the prime swarm every day or two is highly recommended. I have not tried it. It looks to me just like provoking the colonies from which your surplus must come, into a new series of swarms, and incurring at the same time a risk of making them queenless. In general, the man who says he can control the swarming fever never had a case of it on his hands —that's the long and the short of it. A dozen or even twenty prime swarms coming out in one hour is not swarm-fever. The colonies were all in good condition, and a freak of the weather brought them out all at once, that's all. A troublesome plenty of after-swarms, if they come in regular time (nine days after the first) is not exactly the disease either. In swarm-fever, swarms come out 14, 15, 16, and 17 days after the primes, showing that, in the first instance, the swarm came out with no preparation whatever. Young primes which have not yet built their quarters nearly full of comb begin a new series of swarms. Dividing is worse than useless. Each fragment sends out swarms; and the total of swarms is increased, and you have the division colonies in addition. This is the disease we invite you to cure, brethren; and hence these tears. E. E. HASTY.

Removing all the queen-cells but one seems to be pretty generally accepted; but I should like to know how many of those who quote the above for an answer practice it regularly. I prefer the plan given by friend Green. But this does not always work. I expected friend Hasty was going to recommend burying the bees in the ground until they behaved themselves, as a remedy for all swarming troubles; but it seems that even the underground treatment does not always answer.

QUESTION 129.—*I have a colony which has a young queen at liberty, and several more in their cells; and if left undisturbed it will send out a swarm to-morrow. If to-day I liberate all the queens from their cells, leaving two or more at large in the hive, but no queen in a cell, will the swarm issue?*

As the Spaniard says, "No sé." R. WILKIN.

Not as a rule; but they should be watched.
L. C. ROOT.

Not generally. They will kill each other, and one will remain. P. L. VIALLON.

I am inclined to think they will not, but I have no positive knowledge. C. C. MILLER.

Probably not; there will be a battle, and the victor will likely hold the field. MRS. L. HARRISON.

Sometimes, but not as a general rule. I once had a swarm under precisely these conditions.
G. M. DOOLITTLE.

We think that bees will manage to keep two queens, and swarm with one and sometimes with both. DADANT & SON.

Perhaps not, and yet it would not surprise me at all if they swarmed immediately, if it was a very favorable time for swarming. H. R. BOARDMAN.

I have never tried the experiment, so I can not say; but I wish the querist would do so and report; that is, report after trying the experiment several times, as once doing so will prove nothing.
O. O. POPPLETON.

It is very uncertain just what they would do; but if I did not want them to swarm, I would take the queens away in place of liberating them.
E. FRANCE.

I don't know; but I think if that is the only condition existing that might be considered favorable to swarming, the swarm would not issue.
A. B. MASON.

It may issue at any time, and it may not. If the latter is the case, then all but one of the young queens have disappeared a few days afterward.
CHAS. F. MUTH.

I never tried this; but I think if the swarming-fever were prevalent among the bees they would swarm anyhow. There would be no certainty about it. JAMES A. GREEN.

Yes, as a rule, supposing that in your climate or locality it is swarming time, and conditions for such are favorable; otherwise the surplus of queens will be killed off. JAMES HEDDON.

Not to-day, Feb. 12. I don't know what they would do at the swarming season, but I think they would swarm the same. With the swarming-fever aroused they will swarm out with one young queen.
P. H. ELWOOD.

I think usually it would. Indeed, I have known several queens to come out of cells, hours before the swarm issued. The young queens do not always wait for the swarm to start before they issue from the cells. A. J. COOK.

If the colony is strong, and honey-flow and weather fair, yes; if the colony is weak, then no. If the colony is strong, the bees will not allow all the young queens to meet any more than they would allow the hatched queen to destroy those in the cells, for the reason, I take it, that they desire to swarm—another illustration that the impulse to swarm comes from the bees. GEO. GRIMM.

This scheme is interesting enough to deserve trial, both in moderately swarming and immoderately swarming apiaries. I will venture the opinion, that in the former it will usually succeed, while in the latter the swarm will often issue and leave a little queenless remnant in the old hive. Likewise I should not be surprised to see the whole batch turn up queenless sometimes. This plan seems to have one of the objections to the old cutting-out-all-but-one method (which is generally abandoned I believe); namely, serious liability to overlook one.
E. E. HASTY.

If I understand the above question, the point is, Does it change matters particularly one way or the other, if you open the cells with the point of your knife, or let them hatch after their own fashion? From what experience I have had with this kind of work, I should say that it would not make much difference. If the queens were let out of their cells before they were ready, the bees would probably tumble them out of their hives as so much rubbish—that is, if they noticed them at all. If they let them remain, when they have accumulated strength by taking sufficient honey and exercise they would swarm or not swarm, according to the flow of honey, number of bees, state of weather, etc. I once took a swarm of hybrids out of a bee-tree that seemed to have queens scattered all through the colo-

ny. They swarmed some, and I divided them up some, to give each queen a comb of brood. I think that none of the queens in this case meddle with each other at all; but perhaps the shock of the falling tree, and the bumping and tumbling around which they received might have put them out of fighting trim.

Our Homes.

Not to be ministered unto, but to minister.—MARK 10: 45.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

ALTHOUGH the book is finished, the matter is not out of my mind, by any means, and very likely never will be. During this present spring of 1889 we have had some new experiences; and in many lines, at least this matter of raising crops seems to be really overdone. Friend Terry's potato-book has not had any thing near the sale that it had a year ago, and very likely the book has been the means of contributing at least somewhat to the great quantity of potatoes that can not be sold. I believe that this state of affairs prevails pretty much all over the United States. In our locality, thousands of bushels are being fed to stock, and may be other thousands will go the compost-heap. It has been suggested that reclaiming our swamps, planting potatoes by machinery, applying Paris green by machinery, harvesting the crop by machinery, etc., has made it impossible for planting, hoeing, and digging by hand, to pay expenses any longer. While I do not believe that this is true, there may be a grain of truth in it. The question is, Will potatoes ever again be worth a dollar a bushel? I think they will, but it may be a good while, and very likely prices are going to run lower. Now the same is to a great extent true, at least in many localities, with the apple crop; and while I write, there seems to be a great prospect that the coming strawberry crop will be beyond any thing heretofore known, and may be beyond what the people can consume. Should a frost, however, occur just now, and I confess that, on this 21st day of May, there is quite a prospect of it, such an event would change the aspect of things entirely. Then those who were prepared to defend their crops from the frost would probably make their money, while their less fortunate neighbors would lose heavily.

Well, a good many are taking the ground that it is impossible for our people to find employment, even raising crops, and that too many crops are raised already. While I do not believe this, I am afraid, as I said before, there is a grain of truth in it; and if your old friend had better stop urging everybody to raise crops and live under their own vine and fig-tree, is there any other opening? Has the great Father in heaven made a *blunder* in putting so many people in this world of ours, without providing any thing for them to do? Not so; and I am sure the fault is with ourselves and not with God. In the first place, it is by no means certain that we should be any better off by getting a dollar a bushel for our potatoes, instead of 25 cents, or 15 cents for our strawberries, instead of 8 or 10 cents. You may say that we *must* have enough for our potatoes to pay the expense of cultivation and harvesting, and the same with strawberries. We must have enough for them to pay the cost of picking. In one sense this is true. But the escape from this apparent corner is in using more brains—in letting necessity be the mother of invention. Better plans must be invented for doing our work. We must shake off the sleepy way of doing things, and use the common sense and reason which God has given us; and this brings me to my subject of what to do. The waste and useless motions which are to be found in most employments in life are truly appalling. Two great strong men are often employed to do the work that one small boy could do easily. We have machinery and improved methods; but without brains to guide and direct them, they are, to a great extent, a failure. Men and women are wanted to guide and direct; to look after the leaks; to cure us of our stupidity. Stupidity is the word exactly. We are all stupid, even the best of us. At one time a great shopful of machinery was standing still, because the feed-pump to the boiler would not work. It was pulled to pieces, and put together again repeatedly. Every thing was all right. The matter was getting to be serious. The great crowd of hands could not go to work until the pump could be made to throw water into the boiler. What do you suppose the trouble was? The valve situated near the dome of the boiler was not open wide enough to let the steam into the pump. The *small* valve close to the pump was opened and closed repeatedly, of course; but somebody, in a shiftless sort of way, had opened the valve near the dome *only a little*, and there it stayed until some one of the crowd was keen enough to declare that the pump had not sufficient steam to do its work. The reply was, "Why, the valve is wide open;" but the man who was using his *brains* declared, "Then some *other* valve is not wide open, or there is some obstruction." Half a dozen ought to have guessed from the working of the machine where the trouble was.

A few days ago we were disappointed in not getting a washer-woman. Mrs. R. said that she and the children could do it if somebody would turn the wringer; and then she added that she thought the wringer would have to be thrown away and a new one bought, because it had got into a fashion of turning so hard lately. I decided to take a look at the wringer, and what do you suppose I found? First, the set-screw that pressed the rolls together was so rusty that I could not turn it with my thumb and finger. A five-cent oil-can and five cents' worth of sewing-machine oil fixed it nicely. Five cents paid for the oil in the can, and almost a bottleful besides; but when the screw was oiled I found it would not bring the rolls together so as to do good work.

"Oh!" replied my wife, "they *used* to

work together nicely, but lately we can not get them down so as to wring any thing as dry as it should be."

Before she had done speaking, however, I found that the blocks that moved the bearings of the rolls closer together touched each other at their ends, so that the screw, instead of crowding the rolls toward each other, simply crowded the two blocks of wood against each other; and had the weight of a ton been put on them it would not have affected the distance of the rolls a particle. I pulled the blocks out in a twinkling, and shaved off the ends; then the rolls came down together as they did when new. Next, in attempting to turn the crank, the uprights that support the rolls "waggled" back and forth one way and then the other. The wringer is one of those mounted on a bench, on two uprights. The bench is large enough to hold a tub on each side of the wringer. Well, these two uprights had been "waggling" for I don't know how long, in just that way. When I expressed my disgust at such a performance, my wife replied again, "Oh! that is the way it has been for this long time, and I have been pounding the wedges in at the bottom with all my might, but it does not do any good at all, or not much good."

I smiled as I drove the wedges clear out and showed her that the uprights did not nearly fill the mortise in the top of the machine. Instead of having been driven in snug, as the manufacturer ought to have made them, there is nearly a quarter of an inch play; but by keying the wedges up tight the uprights had an appearance of being firm. Perhaps they were firm for a little while when the machine was new.

"Well," said my wife, "what are you going to do about it? The holes were made too large in the first place, and they can not be made any smaller."

Right within reach stood a basket of strips of wood. They were remnants of frame stuff from the factory. With one hand I selected a piece of wood that just filled the vacancy in the mortise. Then I called for a saw to cut it off with, at the point where it was just thick enough. My wife has a nice little saw for home use. I found, however, that it was so dull it would hardly cut off a pine stick; secondly, it "waggled" in the handle just as the standards "waggled" in the wringer. I looked my disgust again, and she explained:

"Well, the nice, neat, sharp little saw you gave me was borrowed by one of the men when they were at work near the house. As they did not bring it back, I sent for it, and this *thing* came instead."

Now, my friends, you have a picture of some of the stupidity of the world I have been trying to tell you about. Somebody in a hurry borrowed the nice little saw, because it would save time in going to the factory, which was all well enough had he been conscientious enough, kind enough, or gentlemanly enough, perhaps I might say, to have handed *my wife's saw* back to her. He did not do it, and nobody knows where the saw is. Then somebody else, equally stupid (I hope I am not getting to be unduly uncharitable here), gave her this miserable tool to use in her work. Any workman — in fact, I should say any man or woman — ought to be ashamed of having such a dull thing to work with. We have a man in our establishment, employed on purpose to keep saws in order. In fact, he does nothing else; but yet day after day I find valuable, high-priced hands using dull, crooked saws, loose in the handle. All that was wanted to make the saw tight in the handle was to tighten up three or four screws. Possibly a *wedge* was needed also, to make a substantial job of it.

To return to the wringer: I selected my wedges so that the tenon required considerable driving before it would come down to the shoulder; and when down, the uprights were so rigid that it seemed as if the keys below were not needed. However, I made these keys draw just right, and then drove them all they would bear, without breaking the wood. By the way, it is quite a trade to learn just how much driving wood and metals will bear; and this can be learned only by experience. Those uprights will probably never loosen or move again; and in all the repairing I did, I tried to remedy the defects made in manufacturing in the first place. The wringer will probably work for years, no mishaps occurring, such as I have mentioned.

Now, while the world is full of people wanting something to do, waiting for somebody to set them at work, there is only one in a hundred—no, perhaps not more than one in a thousand—who has gumption or energy enough (it occurs to me again that I am using pretty strong language; but, dear friends, I do hope it does not apply to you) to see that the tools he works with are in shape to do *their best*. There *are* individuals, I know, who like nice tools, and those who won't go to work until their tools are in good trim; but they are few and far between. In fact, there is such a tremendous want for such people that they almost always get above—that is not just the expression I mean, but it tells the story—using tools of any kind. They get a reputation of doing every thing thoroughly and well, and at the same time expeditiously, by using good sound common sense at whatever they may apply their hands to, and pretty soon they get great wages. A relative was stopping with us a few weeks ago, who gets $3500 a year. I questioned him some as to why he could command such pay. It is just in the line I have been telling you; and one other thing comes in with it. He said ever since he commenced selling goods he has made it a point to tell the purchaser every thing about the make of the goods that was to be known. He thoroughly posts himself in regard to the use of the article, the method of manufacture, and then he is so strictly honest that no one who ever deals with him ever has reason to suspect him of even "keeping dark." He sometimes sells single firms $5000 worth of goods. Now, then, friends, you have something of a key to this problem, "What shall we do?" I think I can tell a great many of you what to do. Go and turn your wife's wringer; see if the

poor woman is wasting strength—wearing herself out, perhaps, and laying the foundation of future doctor bills. Get her such a saw as I have described, and then file it yourself or else see that it is kept sharp. If the boys dull it, teach them how to put it in order again, and *insist* on their doing it. Have a good screwdriver and wrench, and, above all things, an oil-can, or, better still, oil-cans of different sizes, and some good oil. If a door squeaks, or opens hard, fix it. Don't you get oil on the carpet, either, nor on any thing else. If the spring in the door-lock is broken, fix it yourself, or hunt up a man to fix it. By the way, how many men do you know of in your vicinity who will fix a door-lock, and do it well the first time? How many men do you know of who would fix up a clothes-wringer in the way I have described, and do it right? Men who can do these things, or who have taught themselves to do them, are never without employment.

"Shall we all turn tinkers?" say you. Yes, my friend, turn tinker by all means, if you have nothing to do. He that is faithful in few things shall be made ruler over greater things. These are the Savior's words. "Not to be ministered unto, but to minister." These are also the words of the Master. How much experience have you had in employing workmen to fix things, and then find them no better than they were before—sometimes not as good. I know without your telling me. A great many times a piece of work is sent home without even testing it to see whether it will work or not. When you want a lock repaired, of course you send along the key. Well, there are people who will repair a lock and send it home without even taking the trouble to put the key in the lock to see if it will turn the bolt. They are too shiftless to test their work before sending it home. They have not been schooled or drilled in thoroughness. People who are professing Christians, it seems to me, can not love their neighbor even a little (let alone loving their neighbors as themselves), or they would consider how much vexation of spirit it makes him to send him something that can not be used. Perhaps some of you think I had better look at home. O friends, I do know it, God knows I know it. A foundation-mill was once sent across the ocean; but when the friend over there across the seas attempted to put the crank on the shaft, it would not go on. The hole in the crank was too small. He accused us of fraud, saying that the mill had never been tested, because the crank would not go on, and never had been on. He was a little uncharitable, however. As it soils a new crank in testing it in the wax-room, we have one soiled crank that is used to test all the mills; but the man who bored the hole in the crank was too shiftless to see whether the hole was large enough for the shaft or not; and the one who packed the mill up to send it off to a foreign country did not have love enough in his heart to prompt him to try the crank on the shaft, to see that it was all right. In our own household, in other households, on the street, out in the fields, and everywhere I go, I hear this longing, "Oh for somebody who would be careful to do things right; who would return borrowed tools, and—borrowed umbrellas; for somebody who would be constantly thinking of the comforts and needs and rights of the neighbors around him, instead of simply self—getting out of the rain, perhaps; getting a cultivator long enough to do his own garden—not caring whether the tools he borrowed were returned or not!" It has been said, that, should the Savior come on earth now, he would find a great improvement over the time when he did come. I grant, dear friends, that he would find much improvement in intelligence, in the progress of invention, etc.; but, oh what a wide field he would find for the exercise of Christian spirit and love! *Not* to be ministered *unto*, but *to minister*.

It is not only that you will thus do good and make people happy, but you will accumulate money. When in California I told you of the great call for something to do—people out of employment; but yet our skillful *bee-men* are constantly wanted. Well, most of these bee-men are experts in repairing things. They can fix almost any piece of machinery. People came to them, and offered them big pay because they were skillful; and, my friend, if you are skillful, people will come to you and offer you big pay. You may say that your talent does not lie in that direction. I want to contradict you. You *can* be skillful if you *want to*, and nothing in this world will help you to be skillful like having the love of Christ Jesus in your heart. If it gives you pain to see a friend or neighbor work with a poor and inefficient implement, a loving desire for his welfare will prompt you to study into the whys and wherefores of things—to get acquainted with implements and machinery, and with the ordinary affairs of this busy world. You can "learn to fix things," by practice. Just keep at it during all your idle moments, and you will soon get to be a proficient. You may think it a small thing to use a *hammer* with skill. Why, a good mechanic with a nice hammer that just suits him will do four times the amount of nailing in an hour that an ordinary person does. A great many times I say, "Friend, will you just let me get hold of that hammer?" and oftentimes I will just make him laugh while I show him the tricks and turns, and the amount that can be accomplished by the skillful use of a hammer. And it is the same with almost all other tools. When I first commenced business, the inspiring motive was not love for Christ Jesus; it was simply love for a nice little woman about 18 years old, who lived off in the country, across the river. That was not a very bad incentive, I admit; but if it had been Christ Jesus, it might have included the other. Her father feared I would never "make a living." Said I (I guess it must have been one moonlight night while we stood by the gate), "*We will see.*" So when I opened a jeweler's repair shop I solicited repairing of all kinds. I fixed door-locks, umbrellas, parasols, coffee-mills, etc. If somebody suggested they had

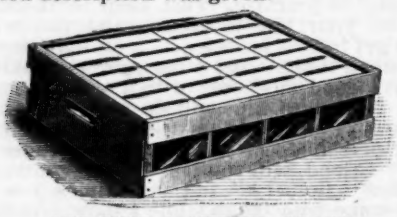
better perhaps throw it away and buy a new one, "Oh no!" said I, "don't throw it away. I will fix it, and it shall not cost you very much." If there was nothing else to do, I would work a couple of hours at an old coffee-mill, and charge only *five cents*. I charged only five cents, because I did not think the article was of enough value to warrant *more* than five cents' charges. I was bound to build up business, and most of you know I did it. And you too, my friends, no matter where you are, nor how you are situated—I do not care if you are lame or blind or deaf, or even if you are sick, you can be helpful to those about you, and begin the apprenticeship in that great trade of helping others. "Not to be ministered unto, but to minister." Let that be the motto of your life, and Christ Jesus will see that you are well paid. Yes, "Good measure, pressed down, shaken together, running over." Now go and look after your wife's clothes-wringer this minute, lest all the above talk simply go in one ear and out of the other, without having accomplished any thing.

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

THE NEW COMBINED CRATE.

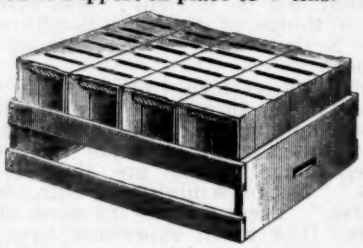
I HAVE never liked the combined crate; but as we have sold a good many, it shows there is a demand for something of the kind. As the objectionable features could be easily removed, we have lately made the crate so that it can be manipulated in very much the same way as the T super. Mention has already been made on page 373, GLEANINGS for May 1, of the changes made in the combined crate; but on account of the lack of engravings, no detailed description was given.



OUR NEW COMBINED CRATE.

The engraving above represents the crate as we now manufacture it. In appearance it represents the old one very closely. The only difference noticeable is the removal, or, rather, absence, of the projecting shoulder at the bottom edge of each end. In the old crate this shoulder was put on for the purpose of filling up the space left open by the rabbets. The design was, of course, to prevent the bees from passing up and around the crate; but as most practical apiarists use their surplus crates in connection with a honey-board, the projecting shoulder, when so used, was an unnecessary feature; and, more than that, it prevented tiering up inside of Simplicity bodies. In this connection the feature of non-tiering up in the old crate was a very objectionable one.

The engraving above needs almost no explanation. It is simply a shallow box, the sides of which are so made as to receive a strip of glass. The sections, instead of resting upon T tins as in the T super, are supported by slats having insets corresponding to the sections and in number equal to the number of rows of sections. These slats rest upon a strip of tin nailed to the bottom inside edge of each end, projecting far enough inside to catch the slats. That there are objections to supporting-slats which correspond with the bottom of the sections, I am aware. It is true, they will not always match with the bottoms of the sections, either because of a slight displacement or because of unequal shrinkage. There are a great many, however, who seem to prefer such a method of support in place of T tins.



REMOVING SECTIONS FROM THE NEW COMBINED CRATE, EN MASSE.

By the engraving you will see that the combined crate can be emptied of its sections in the same way as the T super; the slats simply resting upon the strips of tin are movable, and, like the T tins, are to be removed with the sections *en masse*. While the new crate retains many of the advantages of the T super, it has some additional ones. As explained on page 373, it may be used with or without a honey-board, though we would recommend that it be used in connection with a honey-board. In the engraving in the opposite column it will be seen that the bee-space is put above the sections. Of course, when the honey-board is used, the bee-space should be above rather than below. If the honey-board is not used, the bee-space should be put below the sections. This is accomplished by putting a little ¼-inch strip of wood between the strips of tin that support the slats, and the slats themselves. In all the combined crates we send out, we always send ¼-inch strips of wood, so that the purchaser may suit his own fancy about his bee-space.

Another important feature that the crate has, is that open-side sections can be used in it, which can not be said of the T super. Besides this, it will hold the sections a little more nearly square. One-piece sections are inclined to be a little diamond-shaped, and with T tins this trouble is not materially improved, unless another set of tins are used above the sections. Now, we called the crate "combined" because it can be used both for a shipping package and as a surplus arrangement while on the hive. Although we do not exactly recommend shipping honey in the same crate in which it was produced on the hive, yet there are a great many farmers and others who prefer

to market their honey in that way. If it is desired, the slats can be removed, and thin ⅛ boards be substituted in their place. These boards should be of the length and width of the inside dimensions, of the crate. Remove the sections *en masse* and let the bottom-board down in the crate when it will rest upon the tin supports. Insert the sections, and afterward cover the whole with a similar board. The bee-space on top will leave ample room for the cover-board.

Although the crate is made much more valuable to the apiarist, we make no extra charge. The price for the combined crate will be the same as formerly.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

FIGHTING INSECT ENEMIES.

THIS matter is at present occupying the attention not only of the experiment stations, but of intelligent and progressive people generally. Our valued magazine, *Popular Gardening*, devotes several pages to the matter; but I have felt a little surprised that almost all of them seem to give but little space to protection by means of arrangements for fencing the insects away. Of course, this remedy can be applied only to small plants like melons, cucumbers, vines, etc. It is true, some of them hint that boxes with mosquito-netting tacked over the top will do; but it seems to me that mosquito-netting is altogether too frail; besides, the *Medina* bugs have learned the trick of crawling through it. Nothing answers with us like the wire-cloth protectors which we devised last year, as mentioned in our seed catalogue. Granting that Paris green, pyrethrum, slugshot, or things of this sort will kill the striped melon-bug, you have got to apply it as soon as the first plant is up. On our grounds, the striped bug actually digs into the dirt to *meet* our choice melons as they begin to push through the soil; and very often the first leaves are eaten off before they are expanded; and now to kill them with chemicals or poison you have got to apply it as each leaf comes out; whereas the wire-cloth bug protector can be put on before the plants are up if you choose, and it makes a dead sure thing of the whole business until the plants are big enough to raise the covering so as to stand over them like an umbrella. On our grounds we use altogether three or four hundred of them. The sight of the bright green fresh plants, with their first leaves without scar or blemish, is to me a real cause of rejoicing. We have frequently put the wire covering over a *part* of the hills and left some of the vines uncovered. The result is, that the first real warm day we have, those outside of the inclosure are eaten up in a few hours; and where a leaf stretches up so as to touch the wire covering, a cluster of bugs station themselves on the wire cloth and gnaw the leaf as fast as it grows. I do like to have appliances that are sure and absolute, even if they cost some money. I notice that the *Rural New-Yorker* speaks of the flee beetle again at work on their potato-vines; and they say that, although they have tried every thing so far, they are without a remedy that amounts to any thing. This accords much with my experience, with the exception of the remedy I have already given—lime and guano sifted together and raked into the soil before the seeds are planted. With this protection we raise cabbages, radishes, and every thing in that line, with perfect immunity; but our radishes in the open fields are this year an utter failure. If the tops do manage to struggle past their merciless foes, the roots, when pulled, are found to be so full of worm-holes they are of no account whatever. This satisfies me that it is the larva of the striped beetle that produces the club-root in cabbages and spoils our radishes. A good dose of lime in the soil remedies the club-root in cabbages; but at present it does not seem to save the radishes, or at least it does not save them where the lime was put on last fall. Fresh lime and fresh guano, when the seed is sown, does the business—at least it does in our plant-garden close to the building. It may be that lime, to be effective, must be applied freshly slacked, just as the seeds are sown. These flea-beetles have damaged our early cabbages in the fields very much. Paris green and London purple do not seem to hurt them a particle. Buhach troubles them some, but it is too expensive. We can not afford to dose all outdoors with a powder that costs 75 cents a pound. Slugshot does not seem to trouble them a particle. The kerosene emulsion hinders them some; but the trouble meets us that I have mentioned before—it has got to be applied as often as the new leaves come out. I have been hoping, with the *Rural New-Yorker* folks, that these flea-beetles would soon get out of fashion—at least for a year or two; but we now have more of them than ever before, and they are on the foliage of our potatoes. I have been watching them on the potatoes for several seasons, and have supposed that they did not do any very great harm; but, my friends, it seriously cripples any plant to have the leaves all gnawed up and perforated with little holes. It has sometimes seemed to me as if the plant got discouraged and wouldn't try, after the beautiful bright green leaves it had put forth had been riddled by some greedy enemy. Of course, we can not afford to put wire-cloth coverings over potato-plants, even if we could get some wire cloth fine enough to shut out the flea-beetle.

I now want to say a word about going to extremes in the matter of chasing bugs. I have known a *few* people who would spend valuable time with a magnifying-glass, and different kinds of doses recommended in the papers, to save a few plants, when the time that was given to the subject was worth a good deal more than the whole crop, even if it did its very best. The one who raises garden-stuff for market, and competes with the prices on many products, needs judgment and wisdom. Many times he had better let his crop all go, or plow it under and try something else, than to waste time and

money in dosing insects. Where cheap labor can be secured (little boys and little girls, for instance), the matter can be managed, oftentimes so as to leave a safe margin. I have paid small boys five cents a hundred for potato-bugs when they first began to show themselves in the spring. This, you know, is Terry's plan. Where boys can be hired for less money than Paris green costs, by all means pay the money to the boys. It needs a man of judgment to handle Paris green as a rule; and my experience is that a man of judgment costs considerable money for every hour you keep him at work at the potatoes. Putting something into the soil to destroy the rudiments of the insect-foes seems to me the more rational proceeding; and the guano and lime for plant-gardens—yes, and for early radishes in beds, I think gives us a pointer as to what may be accomplished in this line.

LOOKING OUT FOR FROSTS.

I want to urge again the importance of a barometer and thermometer to the gardener or fruit-raiser. For ten days past we have had very cool nights, and once or twice a little frost. The question came up each night, "Had we better go to the expense of carrying out boxes, etc., and covering our plants, or shall we take the chances?" To cover our stuff as well as we could, would take perhaps three or four men two or three hours. In fact, it would cost a dollar or two to fix well for a frost. Now, then, I will tell you how the above instruments save money. After watching the matter closely I have decided there is but little danger of frost unless the thermometer goes down to 50 or lower at sundown. Now, there is no danger at *this* temperature unless the sky should be clear at night. The barometer here indicates pretty accurately whether it will cloud up or not. On one occasion everybody was sure there would be a frost. Newspapers and pieces of cloth were flying from every dooryard; but I steadily insisted that there was no danger, and made no preparation at all, because the barometer was "away down." When some of them laughed at me, I told them that, with the present low barometer, it must cloud up or else we should have a big wind, and either one would interfere with a frost. In the morning it was very cold, but we had both wind and clouds, and no frost. At another time I decided there would be a little frost. I told the boys to cover the pepper-plants, sweet potatoes, and cucumbers. The result was, that there was just frost enough to scorch the tops of the tallest potatoes, occasionally an enterprising bean-stalk, and the edges of a few of the cucumber leaves. Nothing was greatly harmed. Of course, we put sashes over all the sweet-potato beds. Well, the sashes were covered with frost; and where the leaves and sweet potatoes touched the glass they were scorched—nothing more. The sidewalks and tops of the bee-hives—in fact, the glass of the greenhouse, was covered with frost; but the squashes, even down in the creek bottom, were uninjured. A great many thought it very strange that the squashes and cucumbers low down on the ground were unharmed, while the sidewalks were white with frost. I knew pretty well what it would be, the night before. The sun had been shining for several days, and the ground was quite warm, and warmed down pretty deeply. This latent heat saved the vines and every thing else on the creek bottom; but in the peat swamp, however, it was a good deal worse. The reason is, the light porous peat is a good deal like the boards of the sidewalk. The air circulated under and through it so that it cooled down; while in the clay and sandy soil it did not. So far this season (May 28) we are unharmed, and the labor of covering and uncovering with us during the month of May has not cost us fifty cents.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

HOBBIES; ESTABLISHING OUT-APIARIES.

LIKE my paternal ancestor, I find myself occasionally running into hobbies. It is one thing at one time and another thing at another. First it was chickens and pigeons; then came guns, electricity, chemistry, microscopy, and photography. Bees? Yes. They have had their fair share of patronage ever since I recovered from my first fear of the sting. Well, what is the latest hobby? It is out-apiaries. If I seem to be more enthusiastic than the subject warrants, you must lay it all to Dr. C. C. Miller, who is responsible for the fever. Of course, to keep up constant communication with an out-apiary necessitated a good traveling horse. No sooner had I purchased a good colt than my fever was horses and out-apiaries. Sometimes my mind runs on training colts, and sometimes on building air-castles in basswood orchards which a far-seeing parent provided seventeen years ago. I make this introductory, so that, if you see any thing wild or erratic, either in my writings or methods, you may be able to make a little allowance.

After we had decided upon the construction of the Dovetailed hive, we found that we had quite unwittingly blundered on to something that seemed to be *specially adapted* to moving bees to out-apiaries. When I discovered this, and when I had become thoroughly animated by Dr. Miller's out-apiary articles, I could not rest easy till I had purchased a colt and made other arrangements to carry out, for the present, the out-apiary scheme. By the way, I know of no better fun than to go out into the country buying up bees, with a good spirited colt. I know of no better way to get fresh air; and it certainly is a pleasure to talk with the bee-keepers, here and there dotted throughout the county.

I decided that it would not do to take bees from our own home apiary. Having had foul brood in days gone by, I thought it would be a wiser way to introduce entirely new stock, and put them in an entirely new location. As we fill orders for bees by express from this apiary we were obliged to do so. Accordingly Billy (my colt), the cart,

and I started out on tours around the county, to buy up bees. Having selected the bees and having completed arrangements as to prices, etc., Mr. Spafford and our teamster, Mr. Ward, were to go out, gather them up, and locate them in the basswood apiary. By another fortunate accident, our market-wagon, although constructed specially for carrying vegetables, I found was made just right to take a lot of the new Dovetailed hives. If the wagon had been built expressly for moving bees it could scarcely be improved. The first time, in one load, our boys brought with it 29 colonies from a distance of 11 miles; with no very great crowding, it could be made to take 40. With only *two loads* we could establish an out-apiary, and the expense of hauling would, of course, be reduced correspondingly. Perhaps in the next issue I can give you a photographic view of our next load of bees, with the Dovetailed hives, on their way to the basswoods.

BASSWOOD APIARY.

Seventeen years ago our basswood orchard was set out on a piece of ground containing ten acres. I remember very distinctly helping to mark the rows, riding horseback while a stout, sturdy German held the cultivator. For my services I was rewarded 25 cents a day. As the "25 cents" began to heap up, I remember with what pleasure I thought I should get money, not to buy bees with, but to buy a gun. Little did I then appreciate the scheme of a basswood orchard which now looks so inviting to an apiarist. The trees have not grown as rapidly nor as thriftily as some of the trees that have been set out around the Home of the Honey-bees later; but it is a very pretty sight, I assure you, to look up the long rows of basswood-trees. I will try to give you a view later.

THE DOVETAILED HIVE.

As previously stated, we have nothing but the Dovetailed hive in use in the basswood orchard. The more I use them, the more I like them; and as I see the great piles of them in the flat moving off by freight, every day, it makes me feel glad to think how pleased the customers will be when they receive them. Our apiarist, Mr. Spafford, is equally pleased with them, both for moving bees and for general manipulation.

HONEY QUEEN.

In the basswood orchard, many of the colonies have had to be fed, to prevent curtailing of brood-rearing and starvation. While almost all of the other colonies are working from hand to mouth, one colony in particular required no feeding, but had secured so much honey that all the brood-combs in the brood-nest were bulged with honey that was evidently gathered recently. Besides all this, said colony was building little white burr combs over the tops of the frames. An examination of the brood-nest showed that swarming-cells were being built out. The stock was average in strength, and the bees were purely marked Italians. The queen herself is large and yellow. After I had examined the hive I came to the conclusion that *that* queen should not be sold—no, not for any price, just now. If her bees pan out as well as they have been doing, we shall offer her queens for sale, and call them "honey" queens. You will please understand that we have no daughters of this queen for sale yet. We first want to determine whether her bees will do as well proportionately on clover, and finally on basswood.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 1, 1889.

Let all things be done decently and in order.—1 Cor. 14:40.

PATENTS ON BEE-HIVES.

We extract the following from Langstroth's book, newly revised by Dadant:

In closing this chapter on hives, we can not refrain from advising beginners in bee culture to be very cautious about buying patent hives. More than 800 patents on bee-hives and implements have been issued in the United States since January, 1873. Not ten of these have proved to be of any use to bee-keepers. The mention of this fact will suffice to show the small value of these 790 patents, and the loss incurred by those who have bought them before they were able to judge of their merits.

It seems to me that the above is a clincher; but I do not know where the ten are. There may be, however, 10 out of the 800 that *some* bee-keepers think are better than hives that are not patented.

MAKING IMPROVEMENTS.

We are constantly receiving devices, purporting to be some improvement upon implements already in use. Scarcely one of them is practicable. The majority of them are so expensive that no bee-keeper who looks to his bees for support can possibly afford to use them. In making improvements, we should ask ourselves, "Will the small profits at which honey is now sold warrant the cost and the introduction of the device?" Devices and implements for hives—those that are to be used in any quantity in the apiary, should be inexpensive—as a general rule, the simpler the better. Expensive hives and expensive devices will never reach a very popular demand. If honey could be sold at 75 cents or a dollar a pound, perhaps we might afford some of the alleged improvements.

THE BLACK SHINY ROBBER-BEES—SEE PAGE 456.

Prof. Cook takes it for granted that these bees are a kind of wild bee. Now, perhaps he is right in regard to those described by friend Callings; but I have noticed that some seasons, when robbing gets to be a fashion in an apiary or several apiaries, a good many bees seem to abandon honey-gathering entirely, and devote their whole time and attention and abilities to stealing. These bees, by their unnatural habits, lose their downy fur, and get slim and greasy looking, so that many people have suggested to me that they were not honey-bees at all. I have proved, however, that they were veritable honey-bees; for when basswood and clover began

to yield very profusely, these bees finally abandoned their pilfering and went to the fields and woods with the rest. Some colonies would be composed so nearly of these robbers that I have called the attention of visitors to them as I opened the hive and pointed them out on the combs. They were usually full-blooded blacks, or else had a little Italian about them, with only one very narrow band visible, and a good deal of the time even that was lacking. This would readily explain why they could come in swarms and make themselves very troublesome. I have occasionally seen wild bees enter hives, but these were so much smaller than the common honey-bee that there would be but little danger of a mistake in the matter. I think I never saw more than two or three of these little bees around the entrance at one time.

THE NAMELESS BEE-DISEASE.

LETTERS are coming in almost constantly, complaining of an unknown disease which is affecting the colonies. The symptoms given are always identical to the symptoms given in the A B C book, under the head of "Nameless Bee-disease." It is pretty evident that this trouble is getting to be more and more common. Fortunately, however, it is not a serious one. The removal of the queen, so far as we have ever known, always effects a cure. For the benefit of a good many who do not know how to recognize the disease, we give the symptoms here: The bees have a swollen appearance—that is, the abdomen is distended. The fuzz is entirely worn off, and the bee itself has a black shiny appearance, very much unlike a healthy bee. And just as soon as they become a burden to the colony the healthy ones boost them out of the entrance, where they may be seen crawling around in the grass, as if equally desirous of ridding the colony of their miserable presence. You will find quite a good many bees, doubtless, dead at and around the entrance—bees that have died from this trouble. We make this statement so that we may be saved the trouble of answering correspondents.

BUSINESS AT THE PRESENT DATE.

WE have been having perhaps as large or the largest trade we have ever had since our business was started. We supposed we had ample stores of every thing that might be called for, especially sections, laid up ahead. Only a few months ago we cut down our force of hands and reduced our running time to only eight hours, to prevent getting more stuff made than we cared to carry. Well, every thing held out pretty well until about the first of May. Then orders poured in at such a rate that the largest force of packers we ever employed could not put the goods up fast enough; and when we did get packers enough to handle the business, then the foundation-room got behind; and shortly after, our great stock of sections had vanished and we were crowded in earnest for a few days. Of course, complaints began to come in pretty soon; but I believe that almost every customer was told that, by the time his complaint reached us, his goods had gone. But they did not all go as promptly as they ought to have gone. As we go to press, however, we are getting ahead rapidly in every department; and I hope that, by the time this reaches you, orders of all kinds, with very few exceptions, will be going off as promptly as usual. I have thought best to make this explanation, because some of the friends have felt a little hard toward us. Please remember, we have admonished you in every issue of our price list, that we can not promise goods by the first train when orders are delayed until April or May. As a general thing, of late years, by the first of June the very large orders begin to slack up, and we usually have to drop a part of our hands before July is upon us.

A CORRECTION.

ON page 60, in answer to question 102, as to what is the average consumption of stores per colony, from October to May, our friend H. R. Boardman is made to say, "From 25 to 30, for *indoor* wintering." At the time, we thought these figures were pretty large. Since Dr. Mason's article on page 399 was printed, friend Boardman writes us that he meant to have said that this average of 25 to 30 pounds was for *out*door wintering, and he very modestly intimated that he might have made the error himself. By referring to the copy, we find that he wrote very plainly, *outdoor* wintering; and that the error was our own. With the exception of Dadant & Son, Boardman's average was the largest. We should be glad to have him tell us what is the average consumption of stores per colony for indoor wintering, from October to May. Now, President Mason, will you please "stand up" again and explain what you mean on page 399, where you say you believed "Mr. Boardman knew just what he was saying when he said from 25 to 30 pounds," and that you were "wondering if the others were not guessing"? It now transpires that friend Boardman's statement was incorrectly transcribed by the printers.

ANSWERING QUESTIONS.

WE fear that some of our correspondents are asking questions simply for the sake of asking, and perhaps getting their names in print. Others, again, never stop to look the matter up for themselves. While we are glad to answer questions, we do not like to be obliged to go over the same ground that has already been fully gone over in the text-books. If the querists would first look in the A B C book, or whatever they may have, and if then failing to find the answer they will write us, we shall take pleasure in trying to help them out. Half of the questions we receive are already very completely answered in the A B C book. If you do not find it under the head where you expect it, look carefully in the index. The index to the A B C has been made very complete, with the special idea in view of helping beginners to find the answers to such questions as are liable to come up. For instance, the A B C scholar discovers that there are several eggs in the cell; that drones are hatching from worker-brood. This condition of affairs he has never seen before. If he will turn to "Eggs," in the index, he will come to a line that reads, "Eggs, plurality of, in the cells, 119." On this page he will find very complete particulars and instructions of what to do. Another beginner finds two fertile queens in a hive at one time. He wants to know whether that is an abnormal condition, and, if so, whether anybody else has discovered it. By the index, if he turns to "Queens," he will find under this head, "Two in one hive, pages 215, 220." Still another A B C scholar finds a peculiar kind of worm which is making galleries through his worker-brood. Thinking that this can not be right, he writes to us for information. He should first look at "Enemies of Bees." Under this head he will find "Bee-moth." Under "Bee-moth" he will find

full particulars how to recognize, how to treat, etc. Before looking over the index, think of some catch-word that will suggest the point concerning which you seek information. If you do not find it under the first catch-word, think up another till you hit it.

A. L. SWINSON ON THE SICK-LIST.

THE following has come to hand, and will explain itself:

FRIEND ROOT:—If this reaches you in time, say to readers of GLEANINGS that I am confined to my bed with pneumonia, and can't fill any orders till I am better. I am able to sit up in bed only a few minutes at a time. A. L. SWINSON.
Goldsboro, N. C., May 26, 1889.

DOVETAILED SIMPLICITY AND SIMPLICITY DOVETAILED HIVES (?)

SEVERAL of our customers insist on mixing the two hives, as indicated in the heading. Please remember that the Simplicity hive is one thing and the Dovetailed quite another, and the two can not be combined; that is, the feature of dovetailed corners *can not* be applied to the Simplicity, because the latter has beveled edges. You can easily see how this is if you put on your thinking-cap and study it out. If our customers will please bear this in mind, and not ask us to do impossibilities, it will be appreciated.

REGULATING AND RESTRAINING OUR GREAT RIVERS.

WELL, I have not got a great river to regulate and restrain. The best I can do at it is to take Champion Brook, which runs through our 18 acres; but as Champion Brook sometimes floods its banks, and makes a small river, I have got quite a little problem on hand after all. While in California I fell in love with the irrigating-ditches winding along the steep sides of the mountains. I also fell in love with the idea of protecting tender vegetation by these same hills and declivities. Well, Champion Brook runs through our grounds from west to east; and on the north side there is a steep bank where the fertility from our market-gardens washes down during a great rain. This bank grows such huge weeds that it is a task to chop them down several times a year. Now, I will tell you what we have "gone and did." On the north side of the brook, by means of galvanized gas-pipe with wire stays at the top, we have fenced up the bank so as to make a level plant-bed four feet wide. This plant-bed is just three feet above the water in the creek. On the north edge, close to the bank, is a shallow ditch, permitting us to run a stream of water clear from the carp-pond to the other side of our boundary-line; and whenever the *foliage* in this plant-bed needs water, there is Champion Brook within three or four feet to supply it. The whole of this bed is protected from north winds, and has every bit of sunshine that can be had, every day in the year. On this bed I propose to raise nice strawberry-plants all through July and August, no matter whether it rains or not. And next year at this time we expect to have the earliest strawberries on this plant-bed. Our good friend W. J. Green, of the Ohio Experiment Station, has just sent me a dozen of the earliest strawberries they have found in all of their great number of trials on the experiment grounds. Now, then, if the fertility from our heavily manured grounds undertakes to run off into Champion Brook again, it will just get into my strawberry-plant bed, and I mean to manage so it can not get any further.

Finally: My scheme for restraining our great rivers is by means of galvanized iron pipe and netting—the latter like poultry netting, only heavier. Wooden piles may take the place of the galvanized iron stakes where they are under water; but where they are exposed to both water and air, galvanized iron, or rather, perhaps, galvanized *steel*, seems to me the material to do it with.

WE have at this date 8754 subscribers.

SPECIAL NOTICES.

SECTIONS OPEN ALL AROUND.

We have some 40,000 of these regular width left of our stock made up in the winter. If any of our customers use or can use this kind we can send them by return train if you will specify in your order that you want open all around, or that you can use them. Remember, this applies only to sections 4¼x4¼x1⅛, the regular 1-lb. size.

LATER.—We are up, so we can send any regular size by return train.

STRAWBERRY-PLANTS, AND SETTING THEM OUT ANY DAY DURING THE SUMMER TIME.

Perhaps you have noticed in our seed and plant catalogue that we advertise strawberries from March 1 till Dec. 1 inclusive. In order to make this possible, we first want good plants; second, we want good soil, and facilities for irrigation, or plenty of rain. Mulching may be made to take the place of irrigation largely; that is, if the ground is well soaked when the plants are put out, and then covered with mulch to prevent evaporation. We have been having a very brisk trade in strawberry-plants all through the spring, and are sending them considerably yet, even to the present time, May 30. It is true, it is a little difficult now to get any that have neither fruit nor runners unless they have been clipped off in anticipation of using them to send off. But we now have plants with great strong healthy runners extending a foot or more, and ready to take root at our first good soaking rain, which came last night. Shortly after this reaches you, we shall probably have well-rooted young plants. I do not remember that I have ever before had runners taking root by the first of June.

ADVANCE IN THE PRICE OF BEESWAX AND COMB FOUNDATION.

On another page of this issue you will find a notice of an advance in price of 5 cts. per pound on foundation, both wholesale and retail, by Dadant & Son. We are also compelled to make a similar advance. The reason is, a scarcity of wax and a consequent advance in price. This advance takes place June 1, and will hold until further notice. We will pay a corresponding advance in the price of beeswax; namely, 25 cents cash, 28 cents in trade for fair average wax delivered here; 1 to 3 cts. extra for select quality, especially that rendered in the solar wax-extractor. Price of wax to those who wish to buy will be 30 cents for average, 35 cents for selected. The revised prices on foundation will be as follows:

Packed in neat boxes, with tissue paper between every two sheets.	Heavy brood, 4 to 6 ft to lb	Light brood, about 7 ft to lb	Thin, surplus about 10 ft lb.	Extra t'n flat bott'm about 12 ft lb.
1 to 10 lbs. per lb	45	48	55	60
10 " 25 " "	44	47	54	59
25 " 50 " "	43	46	53	55
50 " 100 " "	42	45	52	54
100 " 200 " "	41	44	51	53

KIND WORDS FROM OUR CUSTOMERS.

I received the queen sent, in good order. She is now laying, and is in fine condition.
DR. C. T. VAN OSDOL.
Allensville, Ind., May 14, 1889.

It is just four days since I received the bees from you, and transferred them into a hive. They are building comb nicely, on foundation. I saw the queen. She seems lively. ROYAL HADLEY.
Manistee City, Mich., May 13, 1889.

How I enjoy reading your travels, and also Rambler's, and Ernest's short travels!
CAPT. DENNIS KIRKLEY.
Toolsborough, Ia., May 11, 1889.

The Dovetailed hives are "just splendid;" section-holders just what I want. Thanks for promptness.
H. H. T. KOHLENBERG.
New Braunfels, Tex., April 29, 1889.

The bees shipped me by you are splendid colonies, and went at once to work. The delay was of no consequence.
ANNIE LEWIS.
Glen Moore, Pa., May 17, 1889.

The goods have arrived, and give entire satisfaction. Bees are beginning to store honey. Our prospects are favorable for a good season.
Phœnix, A. T., May 14, 1889. I. H. COX.

My goods came about a week ago. I am well pleased with them. They are the nicest little hives I ever saw.
A. T. MCKIBBEN.
Flagspring, Ky., May 23, 1889.

Stop GLEANINGS? Never, so long as I can find $1.00 to spare. I would rather go without the county paper or a new dress than be without GLEANINGS. It is always a welcome visitor.
Norwich, N. Y. MRS. W. O. WILLIAMSON.

THE ONE-STORY CHAFF HIVE.

Two years ago I got of you 5 one-story chaff hives, crates, etc. I like them very much. I have 11 swarms, besides some others on shares. They have wintered the best I ever had them, and I have had bees for 25 years.
EUGENE C. GOODRICH.
Lebanon Springs, N. Y., May 15, 1889.

Brother Root:—I believe if you would look over the back numbers of GLEANINGS and print the appropriate articles on tobacco, with your foot-notes, in a little book, and send it broadcast over the world by offering it for sale, it would find quite a sale among reformers, and do great good. It might be well not to give each person's name in full.
Roseville, Ill. MRS. L. C. AXTELL.

The goods I ordered of you were received on the 9th, in perfect order. The express charge was $1.85. Every thing is just as represented. I notice the goods were shipped the same day you received the order. Accept my thanks for your promptness and square and fair dealing. By the way, the Favorite family scale is a beauty and a household convenience. I would not take five dollars for them, and be without another pair like them. May your business continue to grow is my wish. J. H. JAMES.
Greers, S. C., May 14, 1889.

DEBT AND CREDIT.

I have been much interested in reading your article, "Debt and Credit," page 341. May the dear Lord bless you for your kind dealings! I have been "through the mill," and I can say a man must be unthankful indeed who would censure you for trusting him, or for asking him to pay the same interest which you must pay at your bank, in order to give him an extension of time. Go on, Bro. Root, in this same Christlike way of dealing, and do not be discouraged if some hearts are darkened and unthankful. You are filling many hearts with thankfulness, and your deposit in the bank of heaven is increasing F. KINGSLEY.
Hebron, Neb., May 15, 1889.

IGNOTUM TOMATO PLANTS

A great lot of them, transplanted and well rooted, ready to go off by first mail. Prices, 3 for 10 cents; 10 for 25 cents, prepaid by mail. By express, $2 00 per 100. A. I. ROOT, Medina, O.

FOR SALE AT A BARGAIN. A fine house, 8½ acres of land, orchard, well, cistern, and all outhouses that are needed, with 140 colonies of Italian bees and fixtures and supplies. Call on or address
LOUIS WERNER, Edwardsville, Ill.

QUEENS! QUEENS!

ELLISON'S ALL ITALIANS

JUNE AND AFTER.

1 untested queen		75
3	"	$2 00
1 tested	"	1 50
3	"	4 25

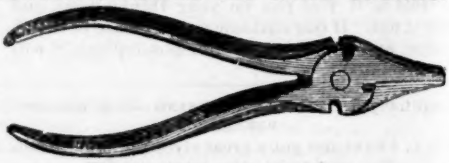
2 and 3 frame nuclei. Safe arrival guaranteed. Wholesale rates on application.
W. J. ELLISON,
11-14db *Statesburg, Sumter Co., S. C.*
☞In responding to this advertisement mention GLEANINGS.

QUEENS! QUEENS!

Look Here! Supplies Cheap.

Albino queens and bees, Chaff hives, improved L. hives, Simplicity hives, Section Boxes, Extractors, Smokers, Reversible Frames, Root's perforated zinc. Write for price list. A. A. BYARD,
11-12d West Chesterfield, N. H.

BUTTON'S PLIERS and WIRE SHEARS.



DECLINE IN PRICE.

We are pleased to quote the following reduced prices on Button's pliers, which you will find much lower than former prices:

Post.	Length.	Each.	Price. 10.	100
4	4½-inch Button's pliers	50	4 50	41 00
6	6-inch " "	60	5 40	50 00
10	8-inch " "	75	6 75	62 00
17	10-inch " "	1 20	10 80	100 00

The 4½-in. will cut No. 14 wire and smaller.
" 6 " " " " 12 " " "
" 8 " " " " 10 " " "
" 10 " " " " 7 " " "

A. I. ROOT, Medina, Ohio.

PASTEBOARD BOXES,

Or Cartons, for One-Pound Sections.

Bee-keepers are realizing more and more the value of these cartons for putting their comb honey in marketable shape. Other articles of home consumption are put up in a neat attractive way, and in shape to be handed to the customer, and carried safely without wrapping. Why not sections of comb honey, especially when the cost of the boxes is so low?

TABLE OF PRICES OF 1-LB. SECTION CARTONS.

Name or designation.	Price of 1	25	100	500	1000
1-lb. carton, plain	2	.20	.60	2.75	5.00
1-lb. carton, printed one side, name and address			.90	3.50	6.00
1-lb. carton, printed on both sides, name and address			1 00	3.75	6.50
1-lb. carton, with lithograph label, one side	3	.30	1.00	4 50	8.50
1-lb. carton, with lithograph label on both sides	3	.40	1 30	6.25	12 00
1-lb. carton, with lithograph label one side, name printed			1.30	5.25	9.50
1-lb. carton, with lithograph label, printed with name on both sides			1.70	7.25	13.50
Lithograph labels, 2 designs, for 1-lb. cartons			35	1.60	3.00

If sent by mail, postage will be 2 cts. each; or in lots of 25 or more, 1 cent each. All the above have tape handles. Price, without tape handles, 5c per 100, or 50c per 1000 less. The quality of the boxes is fair, being made of strawboard, plated outside. If more than 1000 are wanted, write for prices.

A. I. ROOT, MEDINA, O.

WE QUOTE
AN ADVANCE OF FIVE CENTS ON
FOUNDATION,

Wholesale and Retail, over March Prices.

DADANT & SON, HAMILTON, ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

KEYSTONE APIARY.
Imported and Alley Queen-Mothers

Tested, June..... $3 00; July to October.....$2 50
Fertile, " ..... 1.50; " " " 1.00
Virgin, " to October 50c

Alley drone and queen traps at regular prices. Send for circular. **W. J. ROW,**

Mention Gleanings. 10-15db **Greensburg, Pa.**

Price of Sections Reduced.

I will sell No. 1 white basswood V-groove sections at $3.00 per M. No. 2, $2.00 per M. Price list free.

J. M. KINZIE,
10-14db **Rochester, Oakland Co., Mich.**

☞In responding to this advertisement mention GLEANINGS.

UNTIL FURTHER NOTICE.

Select tested Italian queens, $1.00. Standard breeding queens, $2.00. Imported, fine and prolific, $6.00.

R. H. CAMPBELL,
10tfdb **Madison, Morgan Co., Ga.**

☞In responding to this advertisement mention GLEANINGS.

Fruit-Press and Vegetable-Strainer.

Reduced to Only 25 Cts.; $2.75 per Dozen.

We have been using and selling this little implement since February. We are so well pleased with it, and the words of customers have been so full of praise, that we feel confident in saying that no housekeeper would be without one a single week if they knew its value. You can not imagine what a tempting dish you can make of potatoes till they have passed through this press. They are simply delicious. Some of our folks would scarcely ever eat a potato till we began using the press, and now they like them. The fruit season is just coming; and if the press proves as valuable in this capacity as for mashing potatoes, it should be as indispensable to the home as a rolling-pin or any of the common utensils found in every home. Believing that so good an article should be within the reach of all, we have bought 5 gross in order to get them at a price to enable us to sell them for a quarter by handling for a small profit. The usual price is 40 or 50 cts. Our price now is only 25 cts. each; 5 for $1.15, or $2.75 per dozen; $7.00 per box of 3 dozen. By mail, 20 cts. each extra.

A. I. ROOT, Medina, Ohio.

FORT WAYNE, IND.

CIRCULARS FREE. ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

G. K. HUBBARD, 277 S. HARRISON ST., FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.

10c For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied

Mention GLEANINGS. 7-12db

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3 50 per 1000.

☞ Parties wanting more, write for special prices. No. 2 sections, $2 00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

☞In responding to this advertisement mention GLEANINGS.

HONEY, BEES, QUEENS, SUPPLIES.

Catalogue Free.

OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

☞In responding to this advertisement mention GLEANINGS.

QUEENS BY RETURN MAIL.

Tested Ita'n Queens, $1.25; Untested, $1.00.

10tfdb I. GOOD, SPARTA, WHITE CO., TENNESSEE.

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

OLIVER HOOVER & CO.,
4tfdb **Snydertown, Pa.**

BEE-KEEPERS' SUPPLIES

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME.

Shipping facilities good. Send for price list of every thing needed in the apiary. 7tfdb

C. P. BISH, St. Joe Station, Butler Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

JAPANESE BUCKWHEAT!

By freight or express, not prepaid.

Per bu., $2.00; per ½-bu., $1.25; per peck, 75 cts.; 5 lbs., 50 cts; per lb. by mail postpaid, 25 cts. Address

John C. Cilliland,
5-14db **Bloomfield, Greene Co., Ind.**

☞In responding to this advertisement mention GLEANINGS.

1889. HELLO! HELLO! 1889.

How are supplies selling? You send for W. E. CLARK'S illustrated price list. He is rock bottom for all supplies, and don't you forget it.

W. E. Clark's Improved Hinge-Nozzle Quinby Smoker. The Best Smoker Made.

Oriskany, - Oneida Co., - New York
3-14db ☞ *Mention Gleanings.*

SECTIONS and FOUNDATION
CHEAPER THAN EVER.

Sections Only $3. Dealers write for special prices. Free samples and price list. 1-12db
(Near Detroit.) M. H. HUNT, BELL BRANCH, MICH.
☞In responding to this advertisement mention GLEANINGS.

If You Want Full value for your money you should see my catalogue before purchasing. Japanese buckwheat, $1.75 per bushel; 20 varieties of potatoes. Bees, queens, and supplies at low rates. CHAS. D. DUVALL,
7tfdb Spencerville, Mont. Co., Md.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, $2.75 to $3.75 PER M. SHIPPING-CASES VERY LOW.
SEND FOR PRICES.

GOODELL & WOODWORTH MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**
☞In responding to this advertisement mention GLEANINGS.

J. W. K. SHAW & CO.,
Loreauville, Iberia Parish, La.

We can send choice untested Italian queens by return mail at 70 cts. each, or $8.00 a dozen. Money orders, New Iberia, La. 11d
☞In responding to this advertisement mention GLEANINGS.

100 TONS OF COMB HONEY

Will undoubtedly be put on the market this season in our
FOLDING PAPER BOXES.

Send for catalogue, 20 pages, free. Sample box, 5c. Our prices defy competition.
9-20db A. O. CRAWFORD, S. WEYMOUTH, MASS.
☞In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (*Mention Gleanings.*) 1tfdb

Italian Bees and Queens for Sale

Wishing to reduce my stock of bees, I offer 50 colonies of fine Italian bees at the following extremely low rates: Full strong colonies on L. frames, put up in light shipping-boxes, f. o. b. at my station, $5.00 per colony. Tested queens, $1.25 each. Satisfaction guaranteed.

A. C. BRUSH,
8-11db **Susquehanna, Sus. Co., Pa.**
☞In responding to this advertisement mention GLEANINGS.

WE ARE NOW READY TO SUPPLY ITALIAN QUEENS to any person who wants as good as the best in the U. S. Reared from the egg, in full colonies. Tested, $2.00; untested, $1.00; 6 for $5.00. Mismated, 50 cts. Remit by *Registered Letter or Money Order on New Market, Ala.*
10-13db **B. B. TONEY & CO.,**
Padgett, Jackson Co., Alabama.
☞In responding to this advertisement mention GLEANINGS.

LOOK HERE!

I will sell fine colonies of pure Italian bees, with their queens, in 10-frame Simplicity hives, 10 frames all worker comb and hive new, well painted, and guaranteed to arrive at your express office in good shape. Prices: 1 hive, $7.00; 2 at one time, $13.00; 4, same, $24.00. Remember the risk of shipping lies with me. Address **JNO. A. THORNTON,**
Exp. office, Ursa, Ill. **Lima, Adams Co., Ill.**
Mention Gleanings. 6-11db

B. J. MILLER & CO.,
NAPPANEE, IND.,

BEE-HIVES AND ITALIAN QUEENS.

4¼x4¼ Sections, from 500 to 3000, at $3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 1tfdb
☞In responding to this advertisement mention GLEANINGS.

1889. 19th Year in Queen-Rearing. 1889.
ITALIAN QUEEN-BEES.

Tested queen, in April, May, and June.....$1 50
Untested " " " " " 80

Sent by mail and safe arrival guaranteed. Also nuclei and full colonies. Eggs of Pekin ducks—White and Brown Leghorns, and White-crested Black Polish chicks, $1.50 per dozen. Address
W. P. HENDERSON,
5tfdb **Murfreesboro, Tenn.**
☞In responding to this advertisement mention GLEANINGS.

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION. See advertisement in another column.

HOLY-LAND QUEENS
A SPECIALTY.

BEES BY THE POUND, IN A L. FRAME.

BEE-KEEPERS' SUPPLIES.

GEO. D. RAUDENBUSH, 445 CHESTNUT ST., READING, PA.
Mention GLEANINGS. 9-10-11d

LITHOGRAPH LABELS
In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2½x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; $1.20 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

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CONVENTION NOTICE.

The Minnesota bee-keepers' convention will meet at the State Experimental Farm, June 26. All interested are cordially invited.

WM. URIE, Sec'y.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding $1.00 to the secretary.

R. F. HOLTERMANN, Sec'y.
Brantford, Ont., Can.

UNTESTED ITALIAN QUEENS,

Reared from imported mothers, good as the best; one, 85c; three for $2.00. W. P. DAVIS, Hyatt, N. C.

FOR SALE.—Italian queens, tested, at $1.00 each, 6 for $5.00; untested, 75 cents each. No foul brood. 12tfd L. A. RESSLER, Nappanee, Ind.

Chas. A. Stockbridge, Fort Wayne, Ind.

Manufacturer of and Dealer in

STOCKBRIDGE'S SIMPLICITY BEE HIVE,

Sections, Frames, Smokers, Comb Foundation, &c.

Mention this Paper. Send for Price List.

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION. See advertisement in another column.

BY RETURN MAIL.

After June 8, 100 of J. F. Wood's warranted Italian queens, at $8.00 per dozen. If less than one dozen are wanted, 75 cts. each is my price. I wish to call special attention to the fact that I have control of all bees within three miles of my apiary, and can largely control the mating of my queens with the drones I choose. I did not have one per cent of my queens mismate last season, hence I am able to warrant every queen without extra charge. Every queen that proves to be mismated will be replaced by a select tested queen, suitable for a mother-bee. Safe arrival guaranteed, and queens warranted to be as good as those of any first-class breeder. All letters will receive my personal attention as soon as received.

JAS. F. WOOD,
11-12d North Prescott, Mass.

☞In responding to this advertisement mention GLEANINGS.

UNTIL FURTHER NOTICE.

Select tested Italian queens, $1.00. Standard breeding queens, $2.00. Imported, fine and prolific, $6.00.

R. H. CAMPBELL,
10tfdb Madison, Morgan Co., Ga.

☞In responding to this advertisement mention GLEANINGS.

QUEENS! QUEENS!

ELLISON'S ALL ITALIANS

JUNE AND AFTER.

1 untested queen		75
3 " "		$2 00
1 tested "		1 50
3 " "		4 25

2 and 3 frame nuclei. Safe arrival guaranteed. Wholesale rates on application.

W. J. ELLISON,
11-14db *Statesburg, Sumter Co., S. C.*

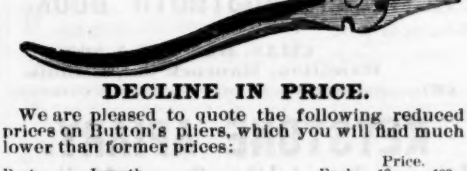
☞In responding to this advertisement mention GLEANINGS.

QUEENS! QUEENS!

Look Here! Supplies Cheap.

Albino queens and bees, Chaff hives, improved L. hives, Simplicity hives, Section Boxes, Extractors, Smokers, Reversible Frames, Root's perforated zinc. Write for price list. A. A. BYARD,
11-12d West Chesterfield, N. H.

BUTTON'S PLIERS and WIRE SHEARS.



DECLINE IN PRICE.

We are pleased to quote the following reduced prices on Button's pliers, which you will find much lower than former prices:

Post.	Length.	Price. Each.	10.	100
4	4½-inch Button's pliers	50	4 50	41 00
6	6-inch " "	60	5 40	50 00
10	8-inch " "	.75	6 75	62 00
17	10-inch " "	1 20	10 80	100 00

The 4½-in. will cut No. 14 wire and smaller.
" 6 " " " " 12 " " "
" 8 " " " " 10 " " "
" 10 " " " " 7 " " "

A. I. ROOT, Medina, Ohio.

PASTEBOARD BOXES,

Or Cartons, for One-Pound Sections.

Bee-keepers are realizing more and more the value of these cartons for putting their comb honey in marketable shape. Other articles of home consumption are put up in a neat attractive way, and in shape to be handed to the customer, and carried safely without wrapping. Why not sections of comb honey, especially when the cost of the boxes is so low?

TABLE OF PRICES OF 1-LB. SECTION CARTONS.

Name or designation.	Price of 1	25	100	500	1000
1-lb. carton, plain	2	.20	.60	2.75	5.00
1-lb. carton, printed one side, name and address			.90	3.50	6.00
1-lb. carton, printed on both sides, name and address			1.00	3.75	6.50
1-lb. carton, with lithograph label, one side	3	.30	1.00	4.50	8.50
1-lb. carton, with lithograph label on both sides	3	.40	1 30	6.25	12 00
1-lb. carton, with lithograph label one side, name printed			1.30	5.25	9.50
1-lb. carton, with lithograph label, printed with name on both sides,			1.70	7.25	13.50
Lithograph labels, 2 designs, for 1-lb. cartons			.35	1.60	3.00

If sent by mail, postage will be 2 cts. each; or in lots of 25 or more, 1 cent each. All the above have tape handles. Price, without tape handles, 5c per 100, or 50c per 1000 less. The quality of the boxes is fair, being made of strawboard, plated outside. If more than 1000 are wanted, write for prices.

A. I. ROOT, MEDINA, O.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb., E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We *guarantee every inch* of our foundation *equal to sample in every respect.* Every one who buys it is pleased with it.

Write for *free* samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889. 3tfdb

CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.

☞In responding to this advertisement mention GLEANINGS.

KEYSTONE APIARY.

Imported and Alley Queen-Mothers

Tested, June..... $3.00; July to October.....$2.50
Fertile, " ..... 1.50; " " " 1.00
Virgin, " to October 50c

Alley drone and queen traps at regular prices. Send for circular. **W. J. ROW,**

Mention Gleanings. 10-15db **Greensburg, Pa.**

Price of Sections Reduced.

I will sell No. 1 white basswood V-groove sections at $3.00 per M. No. 2, $2.00 per M. Price list free.

J. M. KINZIE,
10-14db **Rochester, Oakland Co., Mich.**

☞In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS.

Tested, $1.25 each; untested, June to Oct., 75 cts.; 3 for $2.00. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free.

11tfdb JNO. NEBEL & SON, High Hill, Mo.

Gift! Gift! Gift!

To every purchaser of one tested yellow Italian queen, in June and after, for $1.50, I will give one L. frame nucleus, 50 cts., for each added frame of brood and bees. Tested queens, $1.25; untested, $1.00. Send for price list.

MRS. OLIVER COLE,
Sherburne, Chen. Co., N. Y.
Chenango Valley Apiary. 10tfdb

☞In responding to this advertisement mention GLEANINGS.

THE BRICHTEST FOUR-BANDED
GOLDEN ITALIAN BEES AND QUEENS,
AND THE REDDEST DRONES.

Price, select tested, $3.00; tested, $2.00. Untested, in May, $1.25; June and after, $1.00.

9-12db **L. L. HEARN, Frenchville, W. Va.**

HOW TO MANAGE BEES;

OR, BEE-KEEPING FOR THE "MASSES."

Every farmer, and all beginners in bee-keeping, as well as those more advanced, should have it, as it is especially adapted to their wants. Fully up to date. Price $1.00, by mail. In beautiful paper covers. Illustrated. Address

8 6d **W. S. VANDRUFF, Waynesburg, Pa.**

☞In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION. See advertisement in another column.

THOROUGHBRED White P. Rock, W. Wyandotte eggs, $1.50 per 13; L. Brahma, P. Rock, L. Wyandotte, W. and B. Leghorn eggs, $1.00 per 13. **Italian Queens**, reared on the Doolittle plan, select tested, in May, $3.00; June, $2.50. Warranted, May, $1.25; June, $1.00.

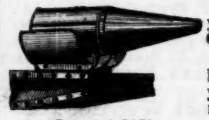
C. H. WATSON,
7-12db Newtown, Bucks Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

Bingham & Hetherington's Honey-knife. Patented 1879.

Bingham Smokers and Bingham & Hetherington Honey-knives are staple tools, and have been used ten years without complaint. The smokers last, work easily, throw a stream of smoke ten feet, and save time, stings, and money. Send card for descriptive circular of the cheapest and best tools in use—free.

THEY LAST.



Patented 1879.

ADDISON, VT.—Have one of your smokers, good yet, used 6 years. E. J. SMITH.

SILVER CREEK, KY.—I have had one of your smokers 3 years, and it is as good as new. T. W. HUDGENS.

ELM GROVE, MASS.—Have one I have used six seasons, good yet. F. M. TAINTOR.

AUSTIN, TEXAS, Apr. 24, 1889.—Goods came thro' in good order. We are glad we can show our customers a full line of solid comfort. Fraternally, J. W. TAYLOR.

FARINA, ILL., Mar. 23, 1889.—Those who see me use your smoker can not be persuaded to buy any other. They stand the test and do the work every time. Respectfully, M. D. HEWETT.

PRICES:

	By mail, postpaid.
Doctor smoker (wide shield) ....3¼ inch	$2 00
Conqueror smoker (wide shield) 3 "	1 75
Large smoker (wide shield).....2½ "	1 50
Extra smoker (wide shield).....2 "	1 25
Plain smoker.....2 "	1 00
Little Wonder smoker .....1¾ "	65
Bingham & Hetherington Honey-knife.....	1 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address T. F. BINGHAM, or

11-16db BINGHAM & HETHERINGTON,
Mention GLEANINGS. ABRONIA, MICH.

WE QUOTE
AN ADVANCE OF FIVE CENTS ON
FOUNDATION,

Wholesale and Retail, over March Prices.

DADANT & SON, HAMILTON, ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

THREE-FRAME NUCLEUS, with one-year-old queen, Heddon's improved strain, $1.50. Frames 12¼x9¼ outside. 10-11-12d
H. L. FISHER, Milford, Kosciusko Co., Ind.

SECTION PRESS.

PRICE $2.00.

For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to 5-16db

WAKEMAN & CROCKER, Lockport, N. Y.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

Sections in bushel boxes, No. 1, $3.00 per M. Japanese buckwheat; a complete S. or L. hive for comb honey, 75c; shipping-crates, and all kinds of supplies cheap. Price list free.

9tfdb W. D. SOPER, Jackson, Mich.

ITALIAN BEES AND QUEENS. Tested queens, $1.50. Untested, $1.00. Bees, per lb., $1.00. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list. MISS A. M. TAYLOR,

9-10tfdb Box 77. Mulberry Grove, Bond Co., Ill.

☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	June to Oct.
Select tested.....	$4 00	$3 75	$3 25	$2 75
Tested.....	3 00	2 75	1 75	1 50
Untested.....		1 25	1 00	1 00
6 Untested.....		5 50	5 00	4 50
12 Untested.....		9 50	9 00	8 50

Contracts taken with dealers to furnish queens by the week at special rates. Address

5-21db J. P. CALDWELL, San Marcos, Tex.

☞In responding to this advertisement mention GLEANINGS.

FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars. DR. A. B. MASON,

9-14db Auburndale, Ohio.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only $3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3-14db **Box 11. Higginsville, Mo.**

☞In responding to this advertisement mention GLEANINGS.

A Four-Color Label for Only 75 Cts Per Thousand!

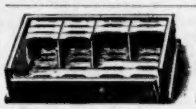
Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

Italian Queens by Return Mail.

Tested, $1.00; untested, 50c each, or more at same rate. 10tfdb I. GOOD, SPARTA, WHITE CO., TENN.

AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION. See advertisement in another column.



Eaton's Improved SECTION CASE.

BEES AND QUEENS. Send for free catalogue. Address

FRANK A. EATON,

5-16db **Bluffton, Ohio.**

☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.

21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address

OTTO KLEINOW,

4tfdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange old copies of GLEANINGS IN BEE CULTURE for bee-keepers' names and addresses, plainly written. I will send 3 copies (as long as they last) for each half-dozen names sent to me from anywhere in Nebraska or Dakota. I will not agree to send any certain number from 1879 to 1888. J. M. YOUNG, Box 874, Plattsmouth, Neb.

WANTED.—To exchange one 46-inch Standard Columbia bicycle, as good as new, with the exception of finish being worn a little. Cost, when new, $80.00. I want a Barnes improved combined machine, consisting of circular and scroll saw, and boring attachment; also want bee-supplies. For particulars, address J. A. PULLIAM, Leasburg, N. C.

WANTED.—To exchange one 10-inch Pelham fdn. mill, good as new, for Toulouse geese, Scotch Collie pup, or double-barreled breech-loading shotgun. A. D. D. WOOD, Rives Junction, Mich.

Black and Hybrid Queens For Sale.

Black and hybrid queens for sale, 30 and 50 cts. respectively. J. A. KIME, Fairfield, Pa.

FOR SALE.—10 hybrids and 2 black queens.
A. W. SPRACKLEN, Cowden, Shelby Co., Ill.

Those having hybrid or black queens for sale, please notify O. R. COE, Windham, Greene Co., N. Y., stating number of each, and lowest price, cash in advance, for the entire lot.

Hybrid queens at any time, from pure mothers, at 40 cts. each. Order when needed.
W. M. VICKERY, Hartwell, Hart Co., Ga.

FOR SALE.—A few black mismated Italian queens one and two years old, at 10 cts. each. Tested, three or four years old, 25 cts.
L. J. TRIPP, Kalamazoo, Mich.

Two black queens, good layers, in Peet cages, 20c. A few mismated Italians at 35c.
S. F. & I. TREGO, Swedona, Ill.

I will send 5 hybrid queens, all last year's rearing, for $1.00. E. C. EAGLESFIELD,
Berlin, Green Lake Co., Wis.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey.*—There is about the same amount of honey as usual on the market at this season of the year, mostly of low grade. Choice white-clover honey, 1-lb. sections, 14@15; fair buckwheat, 12@13. Extracted, white clover, in cans, 7@8c; bbls., 6@7; Southern, 5@5½ for good; dark, 4½@5. *Beeswax*, prime, 23c. W. B. WESTCOTT & CO.,
June 10. 320 N. Main St., St. Louis, Mo.

CHICAGO.—*Honey.*—The old crop is about exhausted, and not any new has been offered, especially is the foregoing applicable to the state of the comb-honey market. Extracted, very little demand; prices 7@8c. *Beeswax*, 25c, and scarce.
R. A. BURNETT,
June 10. 161 S. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—Our supply consists of extracted California only, quotable at 7@7½c. New Southern is sold as fast as it comes in. Orange blossom, at 7¼@7¾c per lb. Lower grades at 65@70c per gallon. *Beeswax*, 27½c.
F. G. STROHMEYER & CO.,
June 10. 122 Water St., N. Y.

MILWAUKEE.—*Honey.*—This market is good for the season. Prices are firm on good qualities, either extracted or comb. The old crop is being closed out. We quote 1-lb. sections, white, 15@16c; 2-lb., nominal; 1-lb., dark, 12@13. Extracted, white, in tin pails, 9@10; in kegs and half-bbls., 8@9; medium, in kegs and half-bbls., 7½@8. Dark wanted, 5c. *Beeswax*, firm, 25@28. A. V. BISHOP,
June 6. Milwaukee, Wis.

NEW YORK.—*Honey.*—Extracted honey is in good demand. We quote fine orange bloom at from 7@7½. Lower grades and off quality, at from 65@70c per gallon. *Beeswax*, very scarce. A good article will sell on arrival at from 26½@27½.
HILDRETH BROS. & SEGELKEN,
June 6. 28 & 30 West Broadway, N. Y.

BOSTON.—*Honey.*—We have less than 20 cases of honey on hand of all kinds. Sales very slow. 1-lb. sections sell from 16@18c; 2 lb., 15@16. Extracted, 8@9. *Beeswax*, none on hand.
BLAKE & RIPLEY,
June 10. Boston, Mass.

ST. LOUIS.—*Honey.*—Demand fairly active, but prices tending lower on account of increased receipts. Choice bright, 6½; dark, 5@5½. *Beeswax*, prime, 23. D. G. TUTT GROCER CO.,
June 10. St. Louis, Mo.

DETROIT.—*Honey.*—Very little honey in the market, and very dull sale at 12@14c for comb. *Beeswax*, firm at 24@25. M. H. HUNT,
June 10. Bell Branch, Mich.

ALBANY.—*Honey.*—Market slow, with no stock and no demand, being between seasons.
H. R. WRIGHT,
June 10. Albany, N. Y.

KANSAS CITY.—*Honey.*—We quote white 1-lb. sections, 15@16c; dark, 10@12; extracted, white, in cans, 7@8; bbls., 6@7; dark, 5@6; white, 2-lb. sections, 11@12; dark, 9@10.
CLEMONS, CLOON & CO.,
June 10. Kansas City, Mo.

WANTED.—Several hundred pounds of nice extracted honey, white clover and Spanish needle in their season. Who will furnish it? Send sample and price, delivered at Mt. Vernon, Jeff. Co., Ill., freight paid. W. W. ADDISON,
Bumpus, Jeff. Co., Ill.

Carniolan Queens.

Importing and breeding this race exclusively since 1884; the demand for them has more than doubled each season. Send postal for circular, or $1 for choice untested queen; $5 per half-doz.; $9 for Benton's best grade imported queen. 11tfdb

S. W. MORRISON, Oxford, Chester Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

—A TESTED—

ITALIAN QUEEN

For 80 Cents.

We will send tested queens by return mail for 80 cents. Untested at 65 cents, or $7.00 a dozen.
Money orders, New Iberia, La.
J. W. K. SHAW & CO.,
12d **Loreauville, Iberia Parish, La.**

☞In responding to this advertisement mention GLEANINGS.

ALBINO AND ITALIAN QUEENS.

Tested, $1.00 each; untested, 60 cents; warranted, 75 cts. One pound bees and untested queen for $1.25. Send for circular.
JOS. MOSER, Festina, Iowa.

Bees Poultry
Bees Poultry
Bees Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at $1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.
THE D. A. JONES CO., BEETON, ONTARIO, CAN.

☞In responding to this advertisement mention GLEANINGS.

I AM AWAITING YOUR ORDER

FOR 3-FRAME NUCLEI.

Price, with untested queen, $3.00. Best tested queen, $4.00; 2-frame nuclei, 50 cts. less. Combs straight and true; all worker comb, and bees finest of Italians. One untested queen, $1.00; 6 for $5.00. Best tested, $2.50 each.
JNO. A. THORNTON,
Exp. Office, Ursa, Ill. Lima, Ill.
Mention GLEANINGS. 12-17db

NOT TOO LATE

YET TO ORDER SUPPLIES

From me, as I ship very promptly. The class of goods I handle is very fine.

—TRY ME ONCE—

Catalogue free. *JOHN ASPINWALL.*
12-13d *Barrytown, Dutchess Co., N. Y.*

☞In responding to this advertisement mention GLEANINGS.

DO YOU WANT

One of the finest GOLDEN ITALIAN QUEENS you ever saw? Then send to us and get one reared by our new, natural, and practical method.
Warranted queens, each, $1.00; **Select** warranted, each, $1.25; **Tested,** $1.50.
We have had **thirty years' experience** in rearing queens. 25,000 of our old customers will tell you that the purity, beauty, and quality of our queens can not be excelled.
12tfdb **HENRY ALLEY, Wenham, Mass.**

☞In responding to this advertisement mention GLEANINGS.

LOOK HERE! Cheap Enough At Last.

Full colonies of pure Italian bees in A. I. Root's Simplicity hive, only $4.00 each. Now ready to ship. Frames, wired combs drawn from fdn., every thing first-class. Write for prices of Poland China swine, White and Brown Leghorn chickens, and Mallard ducks. Eggs for hatching. Also white and black ferrets. Address **N. A. KNAPP,**
11ftdb ROCHESTER, LORAIN CO., OHIO.

☞In responding to this advertisement mention GLEANINGS.

STRICTLY FIRST-CLASS **SECTIONS,** 5¼x6¼x1⅜, at $3.00 per 1000. Other supplies at bottom prices. E. BAER, Dixon, Lee Co., Ill.